AMERICAN GAS *Association* MONTHLY

DECEMBER 1945 • VOL. 27 · NO. 12

Your longing....

You want a modern "workshop" . . . where everything's arranged for an easy flow of work. No dingy corners. No dust-catching cracks. Everything light . . . airy . . . beautiful and practical!

Our layout....

Here you are! Another "New
Gas Kitchen"* designed by
industry. Not just a roomful
lined units . . . but everythi
fully thought out to cu
waste motion, fatigue. (
pleasant laundry or utili
right off the kitchen . . .
"blue Mondays"!) Bes
there'll even be a new
freedom from unwanted
odors, heat and dir

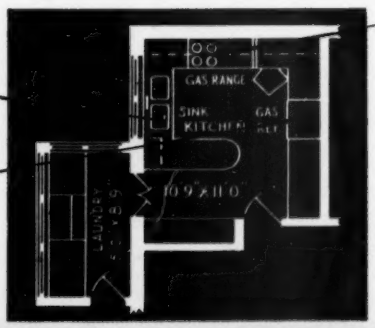
A kitchen that takes the "irk" out of work

TCHEN-LAUNDRY COMBINATION . . . ANOTHER "NEW FREEDOM GAS KITCHEN" DESIGN

's a charming yet efficient dual work-center. nd—like every other "New Freedom Gas itchen"—it's designed around 3 essentials:

ETTER-THAN-EVER-AUTOMATIC WATER-EATING! No use planning for one of the w automatic dishwashers — or washing achines — unless you have the abundant pply of hot water that a new Gas water-ater gives you . . . reliably, economically.

OD STORAGE—PLUS! A wonderfully silent as refrigerator so *spacious* it saves hours marketing time. Stores more frozen foods . keeps *all* foods fresh longer!



A RANGE THAT'S TOPS IN COOKING PERFECTION! What's a beautiful kitchen without an "A No. 1" Gas range . . . automatic *clock controls*, a smokeless broiler and "speed top-burners! Start building your "New Freedom Gas Kitchen" around one of these ultra-modern Gas ranges — *today*. And look for this CP seal!

GAS

THE WONDER FLAME THAT COOLS AS WELL AS HEATS

*Copyright 1946, American Gas Association

AMERICAN GAS ASSO

There is an air of optimism in the gas industry these days that seems grounded in the great new activities under way and which is reflected on the pages of the MONTHLY. *In this issue, the reader will find more about the constantly unfolding picture of expanded research, promotion and advertising. . . . Leading off, the new managing director, H. Carl Wolf, fresh from the management of an operating gas company, views the industry's program from his new-found perspective. His verdict that "The blue flame is on the march" is not without substantial evidence which he presents with compelling logic, sprinkled with the vigor and color for which he is noted. . . . E. P. Noppel, chairman of the Research Coordinating Committee, lends more weight and substance to Mr. Wolf's theme by propounding the impressive array of utilization and technical research in progress. . . . The chairman of the Gas Production Research Committee, "Pete" Dashiell, makes a personal contribution to the cause which he is heading up nationally, and that is the quest for more efficient gas-making processes. . . . Other interesting features cover significant company developments.*

EDITORIAL OFFICES:
AMERICAN GAS ASSOCIATION
420 LEXINGTON AVE., NEW YORK 17, N. Y.

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JAMES M. BEALL, *Editor*

The Blue Flame Is on the March!

BY H. CARL WOLF

Managing Director
American Gas Association

THE Blue Flame is on the March! You've heard this expression; you've seen it in ads. It has, I hope, given you some encouragement. But perhaps you have wondered "on the march from where to where." Let's take a look at the record and then follow the march.

The gas industry is one of the largest industries of the country. Worrying over our local problems we are sometimes prone to overlook the universality with which this country is blanketed with gas service. Over two-thirds of our population depend upon it and almost the entire population is affected by its use in the home, in commercial establishments or in factories. The Government proclaimed it an essential industry during the war and the industry really proved this by its splendid war record.

The gas industry is one of large investments. Its five billion dollars make it the nation's sixth largest. It is an important factor in employment.

The gas industry is a safe industry. In spite of the fact that the word gas has come to connote many things in people's minds, records show that losses in property attributable to all kinds of gas are only a minor portion of total losses chargeable to the utility industry, while comparisons with traffic, with careless home and with many other categories of accidents might well lead to the conclusion that ours should be a haven from an unsafe world.

•

The gas industry is a dependable and stable industry. It has a negligible number of instances where it has fallen down and innumerable instances where it has risen to meet new challenges, to overcome obstacles and to render added service. It is a far cry from the flickering gas lights in Baltimore's Peale Museum, which in 1816 ushered in the gas industry of this country, to the thousands of uses, the myriad of services and the universality of appeal which characterize the industry today.

As new developments came along the gas industry adapted itself to them even though that sometimes meant forsaking one field for another. The basic precepts, oft times the original property and generally the fundamental thinking have been found to stand the test of time and to forge an indissoluble link of dependability from one year to another. But at every turn there have been new vision, new determination, new exploration which have served to keep the industry on the forward march, each year rendering a more important service than the last.

From an investors standpoint, returns while not spectacular have been normally consistent. From the employees standpoint, while wages have not been spectacular, there has been continuity of pleasant employment. From the customer's standpoint, while he may not have been impressed with the mystery and glamour which have characterized some of our other industries, he yet has gotten dependable satisfactory service at reasonable rates.

That is the industry which I submit to you is on the march.

•

While bending every effort toward winning the war the American gas industry found time during the past few years to do some careful, clear and constructive thinking about the postwar period. It took stock of itself and appraised fairly and frankly its assets and liabilities. The severity of the picture ahead was not minimized nor was the proven ability of the industry to meet changing conditions in the past underrated. That there will be a race of diligence for the customer's dollar, that there will be an intense battle of fuels and that the industry which makes greatest progress against these odds is the industry which first boldly and aggressively plans, then by research acquires necessary facts, then promotes and sells and all the while impresses the public with its serious desire to render a real service at a fair price, were all potent points recognized by the thinkers and planners

Address before Mid-Southeastern Gas Association's annual meeting, Raleigh, N. C., November 15-16, 1945.

● Opposite: Home Front Artillery—Construction of 26″ Cities Service natural gas line from Hugoton to Blackwell, Oklahoma. Photo by J. E. Hampson, of Arkansas Natural Gas Corporation, won merit award at a photographers' contest in Cleveland.

and doers of the industry. Its Postwar Planning Reports are models of forthright thinking; its resolve to action has gained the respect and admiration of many other industries. Even before the cessation of hostilities the industry was on the move.

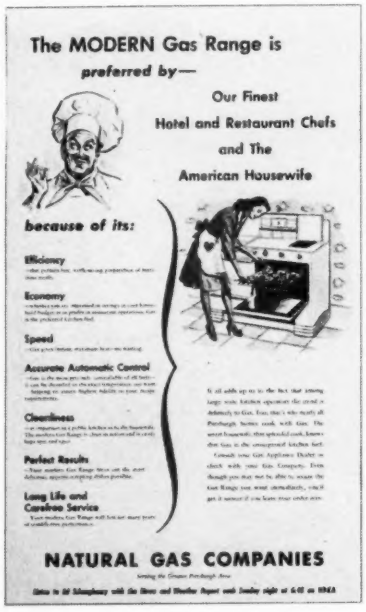
Last year a courageous group of progressives raised a cool million dollars for each of the following three years for plus activities heretofore not attempted by the industry. One third of the total is for a brand new kind of research designed to improve methods and costs and dependability of gas production and at the same time aid in the conservation of natural resources. One fourth of the fund was earmarked for utilization and technical research which would strike out boldly to find new outlets for and new ways of using our product. $200,000 was tagged for augmenting the national advertising program which in ten years will have spent about five million dollars in one of the most effective industry advertising programs on record. This left $200,000 per year to be devoted to a new plus promotional program designed to start where local promotional efforts leave off, to aid and encourage local company efforts and to coordinate the entire promotional activities of the industry in one grand strategic push.

The money has been raised, the program has been worked out, the projects are underway, the Blue Flame is on the March.

Atomic Energy

We are hearing and reading much these days of atomic energy. Some cynics and some dreamers are talking about this new energy form rendering obsolete all industries based on existing forms of energy. Naturally we in the gas business are interested. If our business is to be evaporated into thin air, we want to know something about it. It is my conviction that we are facing only another of the kinds of problems which this industry has faced and solved in the past and from which it has emerged better off. The war precipitated the atomic bomb and compressed into an unusually short period of time the research and development which brought it about. But splitting the atom is an intricate bit of science while the application of this science for commercial use is a practical problem of production and economics. From meager knowledge now available, the economic factor alone would seem to force far out on the horizon the day when atomic energy will reign supreme in our national life.

In the meantime, our gas industry research goes on. Great things are undoubtedly in the making. Things which will strengthen our sinews, enlarge our vision, reinvigorate our determination. And when the day of competition with atomic energy arrives, just as in the case



Current advertising of the Pittsburgh gas companies which ties in with the theme of the enlarged A. G. A. national program

of other competing forms of energy, I confidently expect that our industry will not be found wanting.

The research program of the American Gas Association has been largely confined in recent years to utilization research in the domestic, industrial and commercial fields and to a comparatively small amount of general technical research on distribution and transmission problems. A new approach is now being made by adding research on gas production. Studies are authorized on catalytic gasification of hydrocarbon gases, the use of oxygen for gas production, flash pulverization of coal and coke, flash gasification of oils and powdered fuels and other subjects designed to open new, improved or more economical methods of manufacturing gas. Some valuable work was done during the war by ours and related industries and all of this is being reviewed to determine its applicability to gas production. Many of these processes make use of catalysts and catalysts are easily contaminated by sulfur compounds, hence a study of sulfur resistent catalysts is underway.

Utilization and general technical research covers a broad field of intense interest and great potentiality for better living. Existing appliances and methods are being reviewed but a broad approach is being made into a new world of possibilities. Modern methods of kitchen ventilation; use of radiant materials in broilers; fundamentals of heat transfer; development of burners using 100% primary air and also 0% primary air; fundamentals of noise of extinction of burners; controlled vacuum heat treating; plug-in automatic connections; an engineering study of possible new methods of applying gas to cooking these are only a few of these broad exploratory projects that might well lead to discoveries ranking with any of our age.

49 Research Projects Under Way

Already 49 research projects are underway farmed out to such agencies as the Institute of Gas Technology, Battelle Institute, Purdue Research Foundation and our own A. G. A. Laboratories at Cleveland and Los Angeles. New projects are up for consideration continually. New agencies for qualified, dependable research are being sought out. Original research in company laboratories, in schools and colleges, in commercial laboratories and in laboratories of the coal, oil and other fuel industries is already beginning to take shape. It is not beyond the realm of reason to look forward to the day when the laboratories of our industry will be linked with those of the other great fuel industries of the country in a united effort to find the most effective way of utilizing the fuel and energy resources of the nation for greatest conservation and, this having been determined, to find the most efficient place for each of these industries in the overall picture.

With the coming of the new Association year a decided step-up in the industry's advertising program will be witnessed. You have already noted the more frequent appearance of appealing prod-

uct ads by our gas appliance and equipment manufacturers. In addition to their individual efforts they have this year contributed $160,000 to the A. G. A. national advertising program. This contribution, added to the increased funds raised by the gas utilities, will make possible a program calling for expenditures of almost $900,000, by far the most effective program in the ten years of A. G. A. national advertising. Twenty magazines with a circulation of 44 million will carry 128 pages of domestic gas advertising and 62 magazines with a circulation of 600,000 will carry 535 pages of industrial and commercial gas advertising. Practically every segment of our population, for the first time including engineering students in thirty-seven of our leading colleges, will be subjected to the printed story of how gas can make life more liveable and business more profitable.

Naturally with research and advertising programs of this nature the industry should be able to attract more publicity. A new publicity director is on the job at headquarters and already news items about gas are cropping up in accelerated tempo. Ours has never been a spotlighted industry but 85 million people who rely on our service are entitled to some word about what goes on behind the scenes, particularly when things that are now going on are destined to play such an important part in their lives tomorrow.

Promotional Programs

Promotional programs are taking shape rapidly, some of them already having been activated. The New Freedom Gas Kitchen Program, now a year old, has commanded attention not only within the industry but also in related and competitive industries. The All-Gas Home presentation now nearing the end of its thirty-city run has given inspiration and renewed determination to our sales forces across the country. The availability of promotional personnel now will make possible additional activities designed to reach not only our sales and promotional forces but also our executives and people outside our industry.

The raising and administering of the research and promotional fund is one of the most carefully thought out and adequately controlled plans that could be devised. *(Continued on page 547)*

A Letter to "Life"

Mr. Roy E. Larsen, Pres.
TIME, Inc.
9 Rockefeller Plaza
New York 20, N. Y.

October 31, 1945.

Dear Mr. Larsen:

We liked so well your article on "The California Way of Life" in the October 22nd issue of LIFE, that we were almost tempted to move to California ourselves. We were a little unhappy about this article, too.

On page 106 you showed some very attractive pictures of the Loeffler's home. We call LIFE to task because the range illustrated in Mrs. Loeffler's kitchen is a gas range and not an electric range, as you state in the text at the head of the page.

It is only natural that Mrs. Loeffler's range should be a clock-controlled, automatic gas range, because gas cooking is the way of life for 20,900,000 families in the United States and Canada.

We would like to make a bet that the Campbells and the Stotharts use gas for cooking too. Of course we should give you long odds, because 86% of all the homes in California have chosen gas for cooking. When you see the fully automatic gas ranges built to "CP" standards; when you taste some of the delicious mineral and vitamin packed food that comes out of these exactly controlled, heavily insulated gas ranges, you will understand why, wherever gas is available, it is America's choice.

We would like to make a bet too, that Mrs. Loeffler has a silent gas refrigerator instead of the electric one you mentioned, because silent gas refrigeration is also the way of life for the most progressive California families.

We would like to make another bet, Mr. Larsen. We think that one of the reasons Mrs. Loeffler has to dust only twice a week during the cold months, is because she, like millions of other smart women, heats her home with gas. As you know, there is no heating fuel as clean as gas, and Mrs. Loeffler's experience, when it comes to cleaning, is about the same as every other woman who heats her home with this quiet, clean fuel.

Incidentally, the cabinets in Mrs. Loeffler's kitchen are not very well arranged, and we feel sure she would like to have one of the New Freedom Gas Kitchens, a few of which are illustrated in the attached proofs of advertisements, some of which have appeared in LIFE.

Sincerely,

(Sgd.) James I. Gorton,
"CP" Promotional Director, Association of Gas Appliance and Equipment Manufacturers

A Reply

November 5, 1945.

Dear Mr. Gorton:

Mr. Larsen has referred your kind letter of October 30th to me since I am charged with handling such matters for LIFE.

I find upon investigation that our statement about Mrs. Loeffler's stove came from her own statement to our reporter to the effect that 'everything in her kitchen' was electric. Unfortunately our researchers here took his—and her—word for it and did not re-check further. However, Mrs. Loeffler's refrigerator really is electric: provided our man can be allowed to believe his own eyes. He tells me that, unlike the stove, he looked at it carefully enough to be sure.

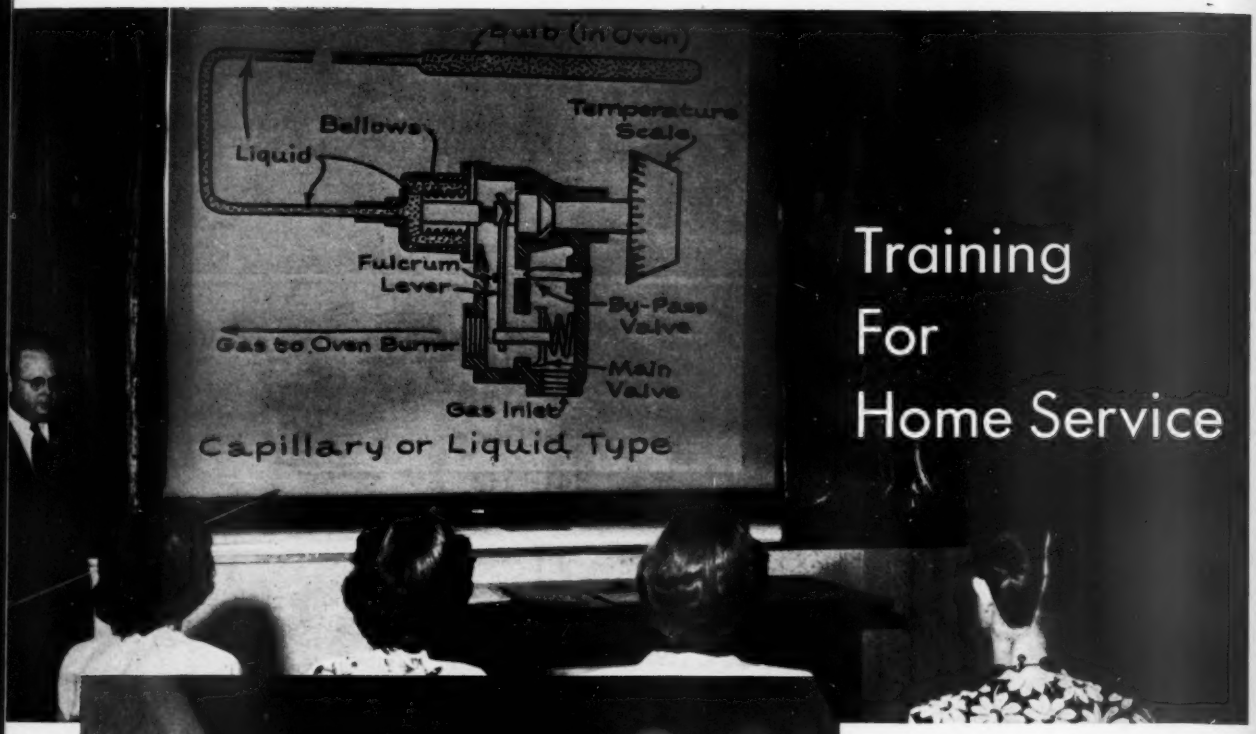
I can well understand why our inadvertent misstatement would make you a bit unhappy. It makes us unhappy too since we pride ourselves upon being accurate. However, I take some comfort from your statement that 86% of all the homes in California use gas for cooking. On that basis, it would seem that your members' equipment is already so firmly entrenched in the Golden State that a single LIFE caption could scarcely undermine its position.

Many thanks for calling this matter to our attention.

Sincerely,

(Sgd.) Emeline B. Nollen,
Assistant to the General Manager

Training For Home Service



Classroom instruction by C. A. Green

Home service representatives are trained to make simple air shutter, pilot and simmer adjustments, correct by-pass flames, and to calibrate ovens

Below—Mrs. Jessie Ewing instructs trainees in demonstration use of gas range

Large utility sets up program to meet growing demand for experienced, sales-trained help

BY MERCEDES A. BATES

Home Service Supervisor
Southern California Gas Company,
Los Angeles, Calif.

Mercedes A. Bates

AN experienced home service representative is one of the most highly trained members of a utility sales organization. It is important that this be so, since she represents the utility as friend and authority to the housewives served by her company. Her knowledge of homemaking subjects and care and use of equipment must be

unchallenged. She must have a friendly personality and yet be aggressive enough to maintain her program.

Obviously, careful screening and selection of personnel is necessary. But without adequate training, the best material available will not produce top job performance. As a preliminary screen, the Southern California Gas Company has, for a number of years, required a degree in Home Economics from an accredited college. Applicants are then selected on the basis of working experience, personality traits and appearance.

In the past, our training has been rather sketchy, depending wholly on an apprentice system, whereby the new member of the department accompanied an experienced member on home calls, assisted her on the platform during demonstrations, and gradually was broken in to the routine of the department. This system had the advantage of permitting the new member to observe all of the more experienced members and to copy from each the best points of her technique. The most obvious disadvantage lay in the fact that since the training followed no organized pattern, some very embarrassing gaps in knowledge were apt to appear after a home service representative had been assumed to be thoroughly versed in her work. The training period was also lengthy.

Pattern for P. C. G. A. Course

A year ago the Home Service Committee of the Pacific Coast Gas Association decided to work on a training course which could be used by all member companies. As a preliminary to this work, R. C. Terradell, general supervisor of sales training, Southern California Gas Company, was asked to prepare and discuss at the P.C.G.A. Spring Home Service Workshop a pattern for Home Service Training. His paper which has since been discussed in several trade journals, outlined a clear pattern which will be followed in the Home Service Committee course, not yet finished.

Our own home service staff had decreased during the war period to about two-thirds of its normal size. Since our contemplated postwar activities would demand a staff about one-fourth again as large as we had maintained before the war, we were faced with the problem of recruiting and training rapidly classes of five or six new home service representatives at a time. Formerly, we had rarely

Janet Dieken assists Annyce Ralls on her first Girl Scout Demonstration

Helen Bickford, Janet Dieken, Annyce Ralls and Diana Risse learn the backstage preparation for Kodachrome slides

Diana Risse practices home call information in the company's model kitchen

assimilated more than one or two new members at once.

One point which the pattern for training home service representatives had emphasized, and which we held to be important, was the need to have one person responsible for, and able to carry through the entire training period. Our departmental activities are sufficiently diversified that it was thought best to create a new job classification to cover this need. Mrs. Jessie Ewing, home service representative in our Inglewood District, was transferred to our main office with the title of Staff Aid. She has been able to be with our new members constantly, to check telephone information, answer questions, conduct formal training classes, and supervise all their activities.

Diana Risse assists Corris Guy, Home Service Representative in Huntington Park, in a cooking school for the Downtown Shopping News

Since our first group began training at the start of the canning season, their first formal training was on this subject. The basic canning methods were first taught by means of Kodachrome slides, then by demonstration and actual practice. Their first work with the public was illustrated lectures with these same canning slides given to home economics classes in the Los Angeles secondary schools.

During the summer months the group received classroom training from our newly organized Sales Training Staff. This instruction, given by means of slides, movies, and actual demonstration, covered the history of gas as a fuel, the production and distribution of natural gas, the organization and officers of our company, telephone usage, and basic mechanical training in the maintenance and operation of gas appliances. Comprising 80 hours of instruction, this course will be given to all members of the Sales Department, and will start new employees off with a foundation of knowledge that it might have taken them several years to acquire by their own research.

The next step was practical training in basic cooking methods. Following an outline which had been developed over a period of several years, Mrs. Ewing demonstrated and explained each method in relation to the gas appliance involved. Then each member of the class repeated the process in the manner of JIT. Thus, baking of cakes involved the explanation of oven operation, baking pans, and thermostat calibration, as well as measuring and mixing instructions that would be necessary for cooking school use. Much of this information was repetition for the class, yet because some college courses require no cooking after the sophomore year, and many college instructors have little idea of the proper use of equipment, it was decided to cover the material uniformly no matter what the individual class member's background might be. Wherever possible, outside specialists were called in from food concerns that specialize in good authoritative demonstrations.

The new department members test all the recipes used by Mrs. Ewing in her "Kitchen Counsellor" column, distributed to 48 newspapers on our lines. Recipe success and failures are discussed by the group before a decision to use them in the column is made.

The trainees' first assignments were several summer series of Girl Scout Cooking and Homemaking Badge classes. The class members worked in pairs, planning the classes, rewriting the manuals and alternating in presenting and assisting at the series of four lessons. After each series, group discussions were held to discuss the problems involved.

The trainees were assigned all the "leg" work and most of the recipe testing for the department's most recent series of Kodachrome slides on entertaining at home, *R. S. V. P.* They were responsible for a number of picture setups and learned at first hand the care and patience necessary in color photography.

Learn While They Work

Following our former pattern, the trainees act as assistants at all cooking schools, doing the marketing, testing the recipes to be used, preparing the trays and assisting on the platform.

The trainees are giving demonstrations on the care and use of gas appliances in home economics laboratories. This material will be translated into practice home calls which they will demonstrate to other members of the group for criticism before they actually call on customers. Since our home call program will not begin again until some time after the first of the year, they will be prepared in ample time.

A refresher course planned for the entire department will provide experience in sales demonstrations. After a three and a half year lull, our most experienced people will need plenty of practice in order to talk sales points with the same facility with which they now discuss nutrition.

Our first training class is now completing its probationary period with the company and has made more than satisfactory progress under the new system. Although we may revise our material with each succeeding group, we have the satisfaction of knowing that each of our new home service representatives has been thoroughly trained in all phases of our present work in record time.

Demand Metering Instruments

Ingenious gas demand meters or rate recorders developed by Chicago utility found useful in obtaining valuable information

Hugh E. Ferguson

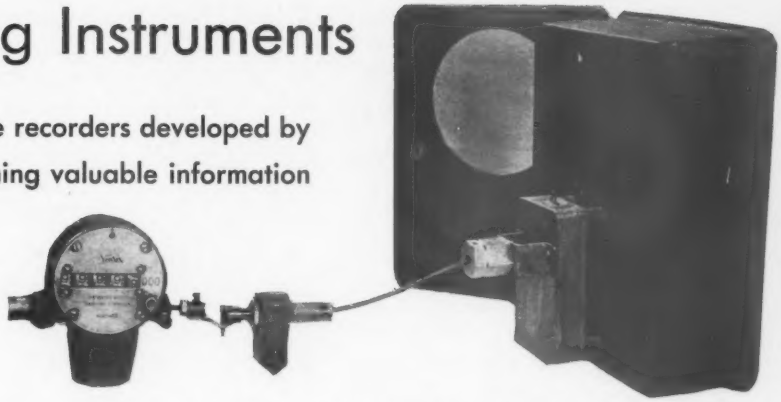


Figure 1. Speedometer cable attachment of Volco Recorder to counter of impellor meter

By HUGH E. FERGUSON

The Peoples Gas Light and Coke Company, Chicago, Illinois

ABOUT 1933, increases in interruptible sales of natural gas in Chicago made it necessary to read the counters of 12 or 13 large Connersville meters in industrial plants located near the city limits at exactly noon each day. At first the normal routines of a number of meter readers were altered to permit them to be at these meters at 11:45 A.M. each day, to remove pressure and temperature charts and to record thereon the noon counter reading. In 1934 the Plant Testing Department of The Peoples Gas Light and Coke Company designed and built an instrument for mechanically printing a record of a counter reading at any predetermined hour. By use of this recorder a couple of distribution system maintenance men now make the rounds of 15 or 20 meters some time during the afternoon and obtain all the noon readings thereof in a mechanically printed form.

The Volco Recorder

In addition to meter reading tasks, these distribution system men change the meter charts, check accuracies of metering accessories, adjust delivery pressures, etc. This instrument has been named the Volco (or VOLume COunter) Recorder. (See Figure 1) It is being used by five utility companies in the Chicago area on city-gate, interruptible sales, bulk purchase, and other large meters that are important in the control of gas distribution.

The purpose of the Volco Recorder is to register the total amounts of gas passing through a meter in fixed periods of 6, 12, or 24 hours. Thus, although it indicates the *daily* variations in flows, which can be compared with seasonal or annual daily loads, it is not, in the generally accepted sense of the term, a demand meter.

In 1939 a modification of the Volco Recorder was designed. It differed from the Volco in that the mechanism for timing the printing action provided for stampings of counter readings at 30-minute intervals instead of at a stated time of day. Forty of this second form of recorder were made for us by a nearby instrument company, primarily for use in surveys of sales of gas to a variety of individual customers. It is preferable to call this second device a "Rate Recorder" rather than a "demand meter" —not only because it is not in itself a meter, but also because it has been found useful in a number of activities other than studies of gas consumptions (such as recording water consumptions of operating equipment, laboratory break down tests of appliances, testing engines and compressors in plants, etc.).

Both the Volco and Rate Recorders are spring-driven mechanisms, so that they can be attached to customers' meters without connections to power sources. In 1942 the Plant Testing Department cooperated in designing an electrically operated counter-reading recorder. This third device is more compact and simpler than its predecessors, and does not have to be re-wound every seven or eight days, but its use is limited to locations where 120-volt connections are available, or cities in which gas and electricity are supplied by the same company.

The Rate Recorder used by this company is shown in Figure 2. The clockwork and the counter-operating mechanism of the Rate Recorder is substantially the same as that of the Volco, but the printing mechanism is actuated by a diametric bar attached to the minute hand of the clock.

The Rate Recorder

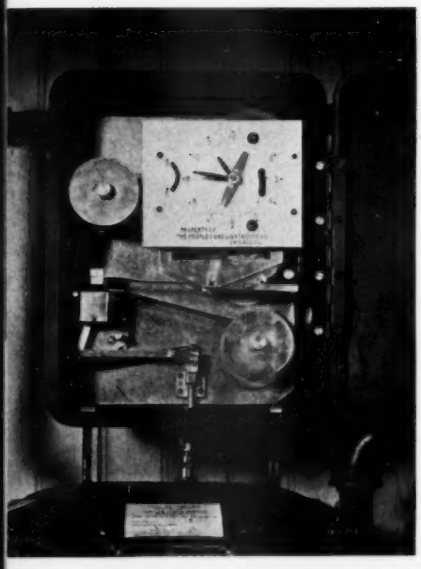
As the timing bar (B) moves the releasing trigger (C) and the printing mechanism is started in operation, a driving gear (M) moves the tape-receiving roll (J) enough to move the carbon and paper strips (G) about ⅜ of an inch so that there is a blank space on the paper just over the digits of the counter (D). Then, through a separate mechanism, the 8-point sprocket gear (N) is turned one-eighth of a revolution. The printing lever (L) is pivoted near its middle, and is attached at one end to a tensed spring (P). The movement of a cam-shaped tooth of the sprocket gear against a roller attached to the lever depresses one end of the latter—lifting the hammer (K) and extending the spring (P). At the end of one-eighth of a revolution of the sprocket gear the lever is released, and the hammer (K) striking on the top of the counter (D) makes a print of the counter reading.

The printing counter (D) is a five-digit, raised-type unit having snap (rather than rolling) action, so that the figures are always in definite positions. It is lever operated (E), against a tensed spring (F), so that each to-and-fro motion of (E) causes one digit change. Thus, the counter totalizes the number of complete rotations of the connection

between it and the meter, regardless of whether the rotation is clock-wise or counter clock-wise. The releasing trigger (C) can also be moved by finger at any time, either to record the existing counter registration or to check the operation of the printer.

The one-inch printing tape used is a standard product of the Underwood-Elliott-Fisher Company—the combined carbon paper and white paper tapes being marketed under the trade-name "Tally Roll."

It will be noted that the diametric bar, which releases the printing trigger (C) every half revolution of the clock minute hand, could be replaced by a four-point cross so as to provide quarter-hour registrations. The working spring has a capacity of about 540 printing operations: at a rate of two printings per hour the recorder must be re-wound every seventh or eighth day. It was believed that the accuracy of any conclusions that were to be drawn concerning the variations in rates of consumption of gas by a particular customer would not be doubled by making 15-minute observations instead of 30-minute observations; the handling of twice as many figures to arrive at the same conclusion did not seem justified. However, it is planned to make some 15-minute-interval observations to settle the question.



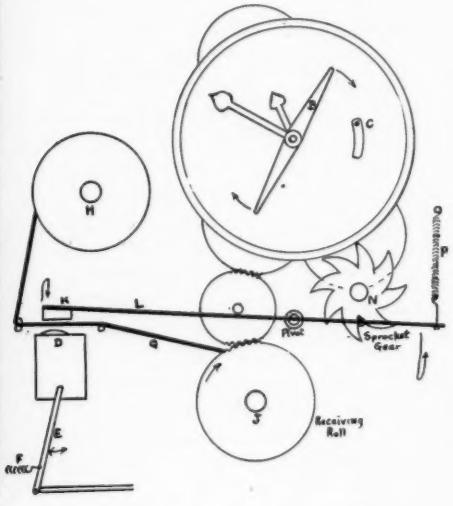


Figure 2. Rate Recorder for domestic meter and diagram showing mechanism

The Electrical Volco Recorder

Because Chicago is served by separate gas and electric utility companies, the Volco Recorder and the Rate Recorder were both designed to be spring-driven instruments. The recently developed Electrical Volco is both timed and powered by a small constant-speed motor. (See Figure 3.)

This third form of recording counter has at least four distinct advantages to offset the disadvantages of requiring an electrical connection. First, it is simpler and more compact, so that it is easier to mount and maintain. Second, the "clock" (or motor) is self-regulating, is not subject to temperature effects, and will operate satisfactorily in any position. Third, the instrument does not have to be periodically re-wound and will operate over periods of time whose length depends on the length of the recording tape and the frequency of printing action. Fourth, the intervals between recordings may be varied from 5 minutes to 12 or 24 hours by simple modifications of the timing disc.

The number of trip arms attached to the timing disc may be increased to six or eight or the solid disc can be replaced by a twelve-point cam-star, providing recordings at 5-minute intervals. For intervals greater than an hour the rotation of the timing disc may be slowed down by the introduction of speed-reducing gear trains.

ATTACHMENT AND INSTALLATION METHODS

Theoretically, almost any spindle, shaft, or lever, in the meter, which makes one complete rotation or movement per unit operation of the meter, can be used as the meter attachment point. But experience and a desire to simplify and standardize procedures and parts have resulted in the adoption of a few specific methods of making attachments to the meters.

Meter Attachment—Tin Case Meters

As gas passes through a diaphragm meter, the flag arms which are attached to the tangent arm rotate the central crank-shaft. During this movement the tangent sleeve travels in a circular path.

In meters of this type the attachment is effected by introducing an L-shaped rod or crank down through a stuffing box in the top of the meter—the vertical axis of this L-crank coinciding with that of the meter crank-shaft. The crank extends downward just far enough for its side arm to be in the path of travel of the protruding top post of the tangent sleeve. As the operation of the meter moves the tangent sleeve and post in a circular path, the shaft of the crank is turned by contact of its arm with the sleeve post, so that it makes one complete revolution for each complete operation of the meter.

The standardized L-crank and stuffing-box are shown in Figure 4. The

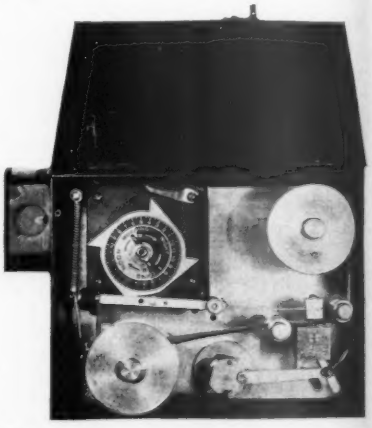


Figure 3. Electrically operated Rate Recorder

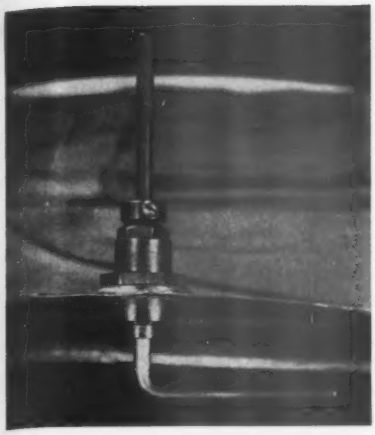


Figure 4. Stuffing box for attaching recorders to meters

crank is a bent piece of 5/32 inch steel rod, having a four-inch shaft and a two-inch arm. The stuffing-box is made up of parts machined from standard brass rod stock. (See Figure 5.)

Another method of meter attachment, not as desirable but sometimes used in special cases, is by means of the shaft extending from the worm of the meter crank-shaft to the index. If the meter index can be dispensed with, it is replaced by a brass plate containing the stuffing-box, and the index shaft is lengthened to protrude through the stuffing-box by a threaded sleeve.

Meter Attachment—Iron-Case Meters

The attachment used for iron-case meters which have solid top plates is the same as that used for tin-case meters—i.e., through the meter top to the orbit of the tangent sleeve. But instead of drilling a ¾-inch hole and soldering in the stuffing-box seat, the meter top can be drilled and tapped—9/16 x 18—to receive the threaded bottom of the stuffing-box body directly.

Attachment to large iron-case meters fitted with top indexes may be effected by extending the shaft of dial having the lowest range. The index glass is removed, the pointer removed from the ten cubic foot dial, and a 2- or 3-inch length of ⅝-inch rod attached to the pointer shaft. The upper end of the extension is held in position by a brace or bridge across the index port, made of thin strap metal.

Meter Attachment—Impellor Meters

Retainer plates are bolted to the ends of the impellor shafts of Connersville meters to hold shaft bearings in position. The protruding ends of the bolts holding these plates have been found to be desirable point of contact for a meter attachment. An impellor hub-cap, usually made of cast or wrought iron ¼ or ⅜ inch thick, is drilled and tapped for a 9/16 x 18 thread, at a point right opposite the center of the impellor shaft. The same type of L-crank and stuffing-box utilized for tin-case meter attachment is used. The L-crank is inserted through the drilled hub-cap until it makes contact with the bearing retainer disc, so that the arm of the crank lies between the bolt heads. Then the body of the stuffing-box is screwed into the tapped hole in the hub-cap, and the assembly of the stuffing-box then completed.

Where the Connersville meter is small or operates at relatively high speeds, it is usually more desirable to utilize the counter shaft, which is geared down to operate at a rate that is 1/10th to 1/100th of that of the impellors. The end of the shaft extending through the base of the meter counter is drilled and tapped to receive a 2-inch extension of ⅝-inch rod.

Remarks Concerning Meter Attachments

Attachments made to working parts of meters—such as to the tangent sleeve of a diaphragm meter, or to the retainer disc of an impellor meter—will operate at speeds conforming to the speed of operation of the meter. Readings of recorders operated by such attachments must be converted to volumetric readings through multiplication by the volume of gas displaced per revolution or per unit operation of the meter. In contrast, attachments to indexes or counters of meters will operate the recorders at speeds related to the volumes of gas passing through the meter, and the recorder readings do not have to be converted to volumes. But in spite of the extra computations required, and in spite of the fact that such "internal" attachments involve the use of stuffing-boxes, the tangent sleeve and retainer disc types of meter attachment are most frequently used because of their greater dependability. In the local areas, attachments to counter or index shafts are exceptional, because experience indicates they do not carry repeated sudden increases in load as well.

In some cases the rate of rotation of

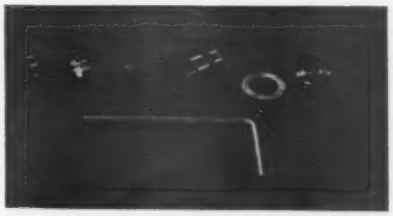


Figure 5. Parts of stuffing box

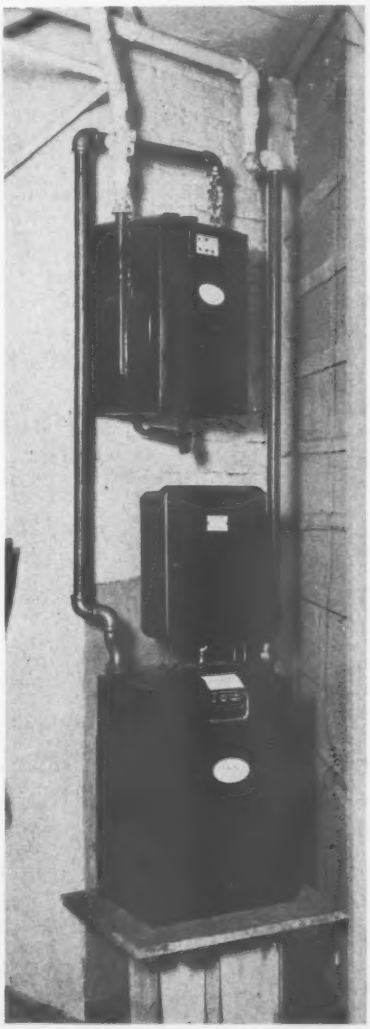


Figure 6. "Sub-meter" installation for determining demand features of a domestic account

the impellors of a Connersville meter may be so high (over 70-75 rpm) that the recorder would not register satisfactorily if directly connected to the impellor retainer disc. Instead of making the attachment to the slower moving meter counter shaft, we have found it more desirable to make the attachment to the impellor disc, and to introduce a reducing gear train just ahead of the recorder. Most of the Volco Recorders on meters handling interruptable sales of natural gas in Chicago have been equipped with gear trains which perform the double duty of converting impellor revolutions to registrations in thousands of cubic feet, and of reducing the frequency of impulses received by the counters to below 75 per minute.

Interconnection

A variety of connections between the shaft of the meter attachment and the shaft of the recorder attachment have been used—threaded sleeves, automobile speedometer cables, universal joints, etc.—but simple little "wiggle-tail" connections have proven by experience to be the most desirable and dependable.

The arms of these wiggle-tails are made of soft iron rod of a composition similar to that of wood nails, 1/16 or 3/32 of an inch in diameter. They are purposely made relatively light and of low strength; in the case of a jam or breakdown in the recorder mechanism, the wiggle-tails are easily bent and disconnected—not only to avoid braking or affecting the operation of the meter but also to avoid compounding any injury to the recorder.

FIELD WORK AND TAPE HANDLING

Installation

When installing Rate Recorders for sales surveys or studies of consumptions, the original procedure was to make up an assembly in our Meter Shop consisting of the recorder mounted on a meter of the same size as that already in place—and to substitute this assembly for the meter being used. Such a procedure affected the customer's records, since the gas consumption was billed from the original meter during one part of the month and from the "test" meter during the remainder of the month. And at the end of the test period, when the test meter and recorder were removed, this split billing occurred again.

We now follow a practice of leaving the original meter in place, and installing the assembly of test meter and recorder in series with it (see Figure 6). The customer's billing continues on the basis of the original meter, the test meter being omitted from the routine monthly readings, so that there is no chance for double-billing. Also, this later procedure provides a check of the accuracy of the original meter, and detection of recorder failure.

This "sub-metering" procedure is used for installing rate recorders in all cases where the meters being used are 5B, 10B, or 6C sizes. In industrial and commercial locations supplied through meters of larger sizes, the recorders are installed on the meters in the field (usually without removing them from service)—by Meter Shop and Plant Testing personnel. Volco Recorder attachments to Connersville meters are also usually made in the field, except when a new meter is being installed.

Temperatures at the locations of gas-meters vary considerably—some meters are in unheated basements or in buildings exposed *(Continued on page 547)*

New Freedom Gas Kitchen Ads Made Available

LEISURE? I'll have more than ever with my NEW FREEDOM GAS KITCHEN!
PORTLAND GAS & COKE COMPANY
I dreamed—
and it's coming true...my NEW FREEDOM GAS KITCHEN
PORTLAND GAS & COKE COMPANY
Everything will be smooth sailing in my NEW FREEDOM GAS KITCHEN
PORTLAND GAS & COKE COMPANY

This series of three New Freedom Gas Kitchen ads prepared by the Portland Gas & Coke Company, Portland, Oregon, has been offered in mat form to anyone in the gas industry. Mats can be used for black and white ads in four column by 12½-inch size, and will be furnished at cost, which will be approximately 70¢ plus mailing charges. All requests should be addressed to McCann-Erickson Inc., 1309 Public Service Building, Portland 4, Oregon. The series was developed under the direction of F. M. Kimball, promotion manager

New Horizons for Gas Research

A progress report on the utilization and general technical research undertaken by the gas industry as a part of the record development program currently under way

E. P. Noppel

BY E. P. NOPPEL

Chairman, A. G. A. Committee on Coordination of Research, Ebasco Services Inc., New York, N. Y.

WE have seen the ending of the most destructive and the greatest technological war in history. The war job of American industry is over. The job of reconversion, which at times seemed a long way off, is now a reality with all of its problems and its headaches.

Research played a great part in our success in war. It made it possible for this peace loving nation to move forward from almost a standing start into a global war and to surpass quickly, in both quantity and quality, the production of materials of war which some of our enemies had spent years in planning and producing.

A good example of this is the synthetic rubber industry. Here is an instance where research in the pre-war period permitted us to design, build and put into operation during the war period, a synthetic rubber industry to provide rubber for our national requirements.

Another example is the pre-war research work which led to the development of the atomic bomb.

War Production Board reports disclosed that in 1944, the United States, representing 7% of the world's population, produced nearly one-half of all of the weapons and munitions of war turned out by both the Allies and Axis nations.

Period of Change

Great changes have taken place during the period of war throughout the world and it will be some time before the effect of these changes is fully realized.

There is every indication that research will continue on an increased scale in peace time. It has changed from the luxury class to the class of necessity for growing industries.

Gas Industry Plan

It is fortunate that we entered this period of great peace-time development with a gas industry plan which had already been prepared and is in action. It covers both promotion and research, and I am going to discuss very briefly some of the projects being undertaken in the field of utilization and general technical research.

Research Program

Your Coordinating Committee on Research and the Research Committees of the Association have endeavored to keep you informed of these various projects through published articles and reports, and it seemed to me that it might be more interesting to discuss here some of the highlights of the various projects rather than to try to cover all of them.

While some projects were started at the beginning of the 1945 fiscal year, it was not until March 1, 1945 that funds were assured for the enlarged program of research.

At the end of the fiscal year allotments had been made by the Gas Industry Plan Committee for more than 30 projects, covering the expenditure of approximately $155,000. Considerable time has been taken in getting the projects properly placed in institutions where adequate facilities are available for doing the work. The severe shortage of personnel for civilian research activities in practically all laboratories throughout the country, has made it difficult to get the program fully under way, but we are glad to report that with the ending of the war this situation is improving.

When you start one of these projects you have to go out and "buy" research from some laboratory or institution having the talent and facilities to do the work you have in mind. "Buying" research during the war was very much like trying to buy meat and the facilities available for doing civilian research were just about as scarce.

How Projects Originate

Research projects originate in the various research committees of the Association and their technical advisory groups of engineers, representing both gas companies and manufacturers, where they are given careful study. Working outlines are prepared under the direction of these committees. In order that the maximum of results may be obtained from the minimum expenditure of funds, it is essential that each project be carefully reviewed by the proper supervising committee of the Association, before requests are made for allotment of funds. Utilization and General Technical projects clear through the Coordinating Committee on Research.

With the enlarged program, it has been necessary to increase what we think of sometimes as "paper work" in order to insure adequate means of expenditure control. Forms have been prepared to cover the essential information required in making requests to start projects and for allotment of funds. A procedure has been established whereby the various committees give us brief quarterly reports of expenditures and progress so that you may be kept fully advised on the program through the Gas Industry Plan Committee.

Turning now to a discussion of some of the projects included in the program, I would like to mention two projects that are to some extent related. They concern the study of problems which

Presented before American Gas Association, Twenty-Seventh Annual Meeting, New York, N. Y., October 24-25, 1945.

have an important bearing on the use of gas in the home. One is Kitchen Ventilation and the other—Methods for Control of Home Humidity.

Kitchen Ventilation

The newer type kitchens are designed for comfort, convenience and beauty, as well as for utility. These factors make kitchen ventilation an important problem in connection with the use of gas appliances and there is great interest in the subject.

Other than opening a window or placing a fan in the wall, there are two general methods of kitchen ventilation. One is the "hood" method, such as is extensively used in restaurants, which consists of collecting cooking vapors, and products of combustion from the top section of the range, from the oven section and the products of combustion from the refrigerator, as well as a certain amount of air from the kitchen.

The other method, generally known as the "Rochester system," utilizes a duct system to discharge the cooking vapors and heated air to the outside of the house. This duct connects directly with the oven and broiler and also with a grille located at some point above the range.

This research project is planned to produce the fundamental technical data from which varied and specific designs of the two general systems can be made and applied by appliance manufacturers, specialty manufacturers, architects and builders. It consists of extensive work to determine quantitively the range of volume of air movement required; sizes and location of hoods; fan sizes; humidity, temperature and odor determinations; and the effects of ventilation on appliance operation.

A research bulletin on the subject of Kitchen Ventilation covering the work done so far is in the course of preparation and is expected to be published the latter part of this year.

Home Humidity Control

The other project, Home Humidity Control, has been brought to the front largely by reason of the nature of recent developments in residential architecture and construction. Generally speaking, more smaller homes are being built which are more heavily insulated —windows are tighter—the kitchen is no longer isolated from the rest of the house. This has brought about rather critical humidity conditions, especially in small pre-fabricated houses which may comprise a substantial part of future housing construction.

The sources of humidity in the home are many and varied. Research in connection with a preliminary study has been assigned to the Purdue Research Foundation, to determine the sources of humidity, what portion is from the use of gas, and what steps can be devised to overcome condensation on walls and windows.

This work is in the nature of an engineering study which it is expected will provide the background which will lead to specific lines of research that should be undertaken.

Pilot Design

The subject of pilot design, construction and performance is being worked on intensively.

Future gas appliances will depend on pilots, particularly automatic pilots, to a far greater extent than at any time in the past. Complete technical information on range top flash-tube pilot ignition for manufactured and natural gases has been developed and made available to all appliance manufactures. The Domestic Gas Research Committee assumed early leadership in this difficult problem of igniting oven and broiler burners from top burner pilots.

The basic technique has reached the advanced stage. It has resulted in the development of the application of single point ignition to stoves for use with manufactured gas. Work in connection with the application to the slower burning natural gas is progressing, but there are some difficult technical problems with natural gas single point ignition that require further research.

Pilot Servicing Problems

The large number of pilot mechanisms that are appearing on appliances present every utility with increased servicing problems. Previous research has not included sufficient study, from an industry wide viewpoint, of the many technical problems involved in pilot design, construction and operation, with different kinds of gases.

One of the typical problems involved is the clogging of pilots due to the formation of carbon, which is caused by the breakdown or cracking of gas from the heat of the pilot.

Another problem is the operation of pilots in closed spaces at high ambient temperatures.

A third problem is the continued operation of automatic pilots when they are called upon to function at long intervals only.

These and other problems concerning pilots are matters of industry wide interest, and the best brains of utility men and manufacturers who are serving on the supervising committees, are being brought to bear on the subject.

Oven Heat Distribution

Sometimes I think we take our cooking appliances very much for granted and have not fully realized the opportunities for further improvement.

Take for example another project which concerns oven heat distribution. Modern cookery is very demanding, especially with baked goods. One would think that oven heat distribution would present no problem at this time—after millions of ranges have been built and used. However, with modern cookery demands and automatic controls, we are confronted with unsolved problems on ovens, and the solution of these will lead to further improvement in our cooking appliances.

Teamwork

● One vice-president of a large company spends about 99% of his waking hours selling its products. He is also strongly convinced that there are lots of others in his company like bookkeepers, purchasing and production personnel, who could do some selling if they knew more about their company.

So he decided on a program of education. Each month he sent to each employee a small folder which explained simply, but fully, the functions and operation of one of the departments.

At the annual employee dinner, officials explained what had been accomplished during the year and what were the prospects for the next year. They also pointed out that the progress of the company and, therefore, of each employee depended on teamwork.

Before items of interest were announced to the outside world, employees were told first.—*Dividends,* published by Ketchum, MacLeod & Grove, Inc.

Home Planning Bureau Display

Photograph of a Home Planning Bureau display taken on the main office display floor of the Hartford Gas Company. Display shows the design created by Diorama Corp., for Surface Combustion. Hartford Gas designed the display panels, information desk and small model home

Let me tell you how many items there are that affect oven heat distribution in relation to each other, and which must be correlated with respect to each other. There are at least 17 that have been put down by the Cooking Research Technical Advisory Group. In very condensed form, they may be stated as follows:

Maintenance of gas input rates to maintain desired temperatures.
Flue losses.
Wall losses.
Preheating time.
Preheating gas input rates.
Size and location of oven flue outlet.
Size and baffling of top side and back flueways.
Size, location and design of oven bottom opening.
Design of oven bottom.
Design of oven burner and its location with respect to oven bottom.
Size, location and design of secondary air opening.
Excess air.
Location of thermostatic control element.
Responsiveness of thermostatic control element.
Location of rack slides.
Type and size of utensils.
Type and quantities of goods being baked.

To secure improved oven heat distribution, those are the problems the oven designer faces. Our oven heat distribution research is producing the detailed technical data with which he will work.

New Gas Cooking Methods

We have modern, well designed appliances. However, as I have said before, we are in a period of great change and must be continually looking forward to methods for improvement. With this in view, one of the research committees is exploring the possibility of new methods for applying gas to domestic cooking.

This project, proposed for 1946, has been assigned to the Institute of Gas Technology and covers an engineering study of possible new methods of applying gas to cooking. This is entirely exploratory and will include both theoretical and practical possibilities. The results of this study will be the basis for further research along this line.

The various projects which I have mentioned concern the application of gas in the domestic field. I would now like to turn to a project included in the program of industrial and commercial gas research.

Heavy duty cooking appliances have, strangely enough, always been heated with plain atmospheric burners that are simply big brothers of domestic appliance burners. The Industrial Gas Research Committee has studied this matter and has come to the conclusion, considering the severe operating conditions and the large quantities of gas used by restaurant, hotel and institutional installations, that more advanced methods of heat application must be explored.

The tremendous advances in various forms of forced combustion for comparable volumes of industrial gas, presents the possibility of applying the techniques of industrial gas to heavy duty hotel and restaurant equipment. There are many expected advantages, such as greater speed, higher thermal efficiencies, lower operating cost, steadier operating conditions, and possibly lower servicing costs.

There will, on the other hand, be problems to overcome in adopting forced combustion with heavy duty cooking equipment. Unlike operators of industrial gas equipment, chefs and cooks are not mechanically minded or mechanically trained. There will be problems in connection with the maintenance of moving parts, which are necessary with forced combustion, during the long *(Continued on next page)*

Movie Actress Visits Model Gas Kitchen

Jo-Carroll Dennison, who traveled the familiar trail to a movie contract by winning honors first as "Miss Texas" and then as "Miss America," is shown visiting the model kitchen on display in the windows of the Southern California Gas Company's Los Angeles office recently. Already well known because of her work in "Winged Victory" where she played an important role, Miss Dennison is currently facing the camera at her studio, Twentieth Century-Fox, in "Anna and the King of Siam"

daily hours of operation of hotel and restaurant kitchens.

Work on this project is now getting under way.

Application of Radiant Heat in Industrial Gas Heating Operations

Radiant Heat is a valuable tool in industrial heating operations. It can be generated by gas, electricity and other fuels. It can be used in both high temperature and low temperature applications.

Much of our industrial gas equipment makes use of the principle of radiant heat and its general use in industry is rapidly increasing. The Industrial Gas Research Committee is now developing a project which will include a fundamental study of the different ways in which radiant heat can be generated with gas, and applied most efficiently to industrial heating operations both above and below 1200° F. This Committee is conferring with several organizations experienced in the subject of heat transfer, looking toward the preparation of a working outline for a new research project in the industrial field.

General Technical Research—Mixed Gases

In the field of general technical research there will shortly be issued a research bulletin or report covering work which has been done by the A. G. A. Testing Laboratories on mixed gases. This is a combined project of the Technical Section and the Natural Gas Department, and covers the interchangeability of various kinds of gases having a heating value in excess of 800 B.t.u., with three types of natural gases which are representative of those distributed in the United States. While much work has been done previously in the field of mixed gases, this research did not cover the means for determining the interchangeability of these high heating value gases which are of great interest to natural gas companies.

Combination Gas and Oil Wells

There is another project I would like to mention because of its importance during the war period. You have not seen any reports on the work accomplished because war time restrictions required that the results be withheld from publication. However, several reports were prepared at the request of the Petroleum Administration for War and were of great assistance to them.

This project is in the field of natural gas production and is titled "Investigation of Controlling and Gauging Combination Wells." It is sponsored by the Technical and Research Committee of the Natural Gas Department and is a cooperative project with the Bureau of Mines.

The work is fundamental in nature and is a continuing project having begun in about 1930. More recently the research has been devoted to determination of the properties of hydrocarbon fluids produced from gas and oil wells.

Now that war time restrictions have been removed, plans are in progress for publication of the results of the work accomplished in recent years.

New Projects

The Research Committees and their Technical Advisory Groups are continually in the process of developing new projects. Two new projects now under consideration involve the storage of natural gas in hydrate form and the further investigation of removal of gums, dust and rust ahead of gas burners.

Preliminary Work Required

It is of utmost importance that proposed projects be thoroughly screened, objectives determined, working outlines prepared, the right institution selected, complete technical and business undertakings agreed upon with the selected institution, and provision made for keeping in touch with the work.

Research Conferences

In 1944 the Committee on Domestic Gas Research inaugurated technical conferences primarily for appliance designers and engineers and gas company utilization men, to assist in making the most practical use of the results of appliance research.

These conferences proved to be so valuable to all groups that similar meetings were held during the current year on a somewhat reduced scale, in New York, Cleveland, Chicago and Los Angeles. It is planned to continue these meetings in 1946.

Research Organizations

There are 21 projects assigned to the A. G. A. Testing Laboratories. This represents a very sizeable program in itself and includes appliance equipment projects and development projects, as well as fundamental technical investigations.

The base of Association research has been broadened by assigning more projects to institutions that offer outside viewpoints and facilities. Assignments have been made to the A. G. A. Laboratories, Institute of Gas Technology, Bureau of Mines, Bureau of Standards, Syracuse University, and certain equipment manufacturers. In addition, new projects have recently been assigned to the Purdue Research Foundation, Battelle Memorial Institute and the Case School of Applied Science. Contacts have been established and conferences held with other leading institutions having extensive equipment and facilities for conducting research work.

Exploratory Research

Some of the projects may seem to cover matters that are more or less routine. I would like to point out, however, that in any research program, there always exists the possibility of developing new principles which will be of major importance to our industry.

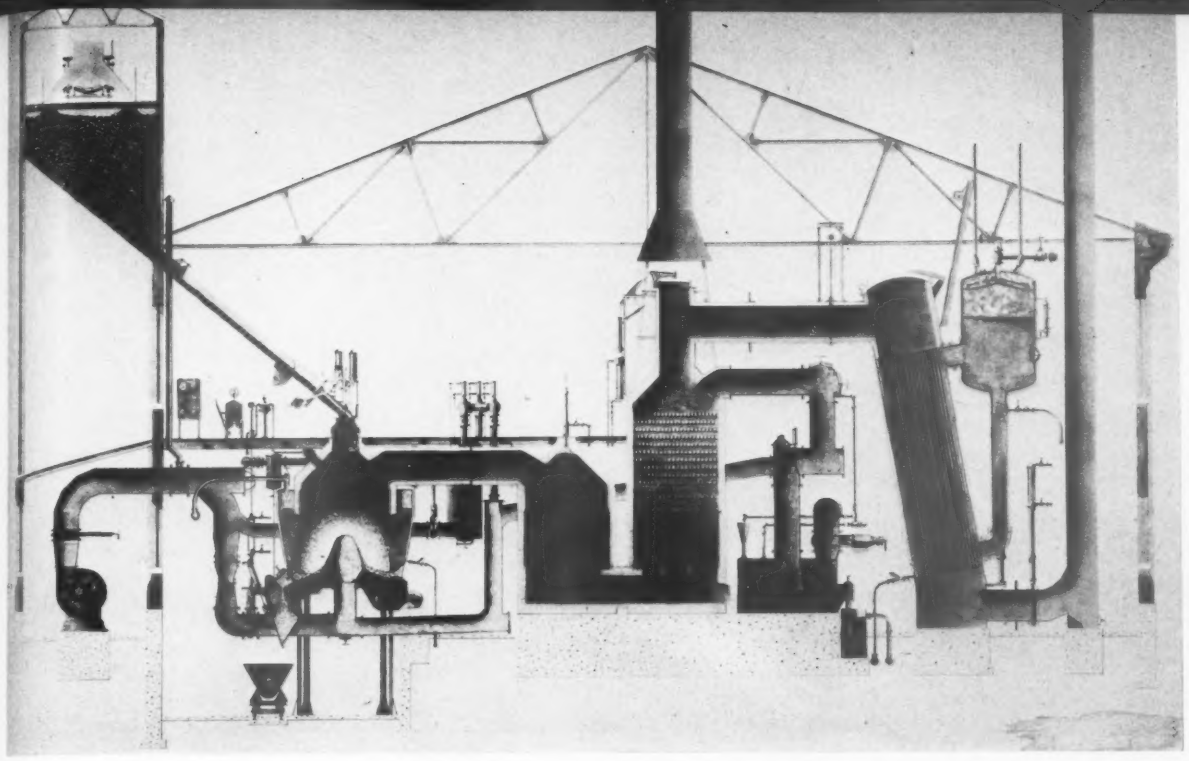
How You Can Aid

And now I want to turn to your part in this program.

Your Research Committees, composed of the best talent in our industry, are giving much of their time and effort to insure the *(Continued on page 551)*

Reward

● Husbands who have borne stoically the absence of their wives while the latter, as members of the canteen corps of the Brooklyn chapter of the American Red Cross, served meals to soldiers and sailors, received recognition Oct. 18. A card inscribed "canteen husband," with a space for the husband's name, has been issued to them, carrying the message: "Has been enrolled as an honorary member of the canteen corps by virtue of his patience and fortitude in the face of absentee housewifery while his wife was serving the armed forces and the home front during World War II." It is to be signed by the wife for the canteen corps.



Typical cross-section view of U.G.I. mechanical generator water gas set of the 9-ft. type

Water Gas Set Capacities

A report to the A. G. A. Gas Production Research Committee by the Chairman gives results of tests to determine production capacity of water gas sets

In evaluating the methods and results described in the following article, it should be borne in mind that they are pertinent to the operations of the Philadelphia company and are not necessarily applicable to other company situations. Each company will have to determine for itself whether such procedures are suitable to its own specific conditions.

By P. T. DASHIELL

Vice-President in Charge of Production, The Philadelphia Gas Works Co., Philadelphia, Pa. and Chairman, A. G. A. Gas Production Research Committee

THE descriptive matter and data which follow constitute a report by the chairman to the Gas Production Research Committee of certain investigations of the performance of the carburetted water gas sets located in Generator House No. 2 of the Station B Works of The Philadelphia Gas Works Co., during the months of July and August, 1945.

The operation of this plant is under the direction of the chairman of the committee by virtue of the fact that he is vice-president in charge of production of the Philadelphia company.

The primary purpose of these investigations was to obtain data concerning production capacity of water gas sets for the guidance of the company's management in making plans for meeting the demand for gas caused by (a) scarcity of domestic fuels other than gas, and (b) postwar conditions under which a large demand for house-heating gas is expected.

The objectives were:

(1) To find the maximum capacity of the sets obtainable under conditions as they existed during the summer of 1945.

(2) To find what the limitations to production capacity were.

(3) To find out what could be done to lift or remove the limitations.

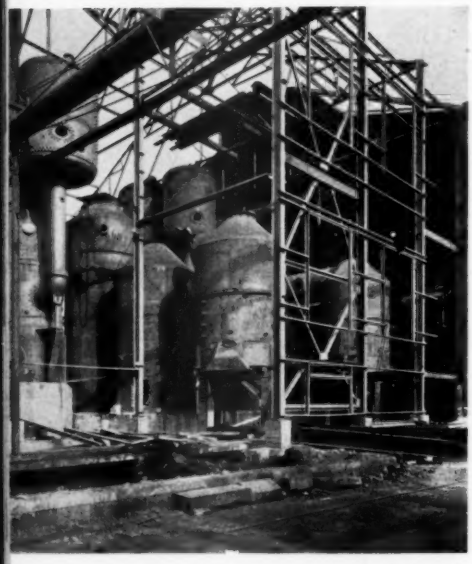
(4) The cost of so doing.

All the above is pertinent to the operations of the Philadelphia Gas Works.

It is, however, the opinion of the writer that, because one of the primary objectives of the Gas Production Research Committee is to develop a means of meeting the postwar demand for house-heating gas at such a cost as to permit the sale of this with profit at a price competitive with that of other fuels, the data obtained will be of interest to the committee and to our industry in general because it shows one method of approach to the problem applicable to one situation. Whether or not a similar procedure would be

applicable in another situation, must be determined for the specific situation under study.

To furnish further information for the use of the committee, beyond the cost of the generating plant, Appendix "A" shows the cost of condensers, relief holder, exhausters, dry box purifiers, and meters, all recent installations, with capacities proportioned to the production capacity of a generating plant of known cost. Omitted are the cost of all connecting piping, commercial gas holders, and buildings except that for housing the generating units. These



Generator house extension and 10-ft. x 9-ft. water gas sets under construction

costs are omitted because of the fact that requirements of no two situations will be similar for these items of cost of a complete plant.

In order to have a clear understanding of the data of the report, a brief description of the original generating plant, as it was built in 1907, and operated in subsequent years to 1929, the reconstruction of certain portions in 1929, and the changes in character of manufacturing materials used in the plant after 1929, will be helpful.

The original Generator House No. 2 at Station B consisted of three water gas sets having two generators each of 10 ft. external diameter and 16½ ft. high, connected to a carburetter of 12 ft. diameter, 20 ft. 6 in. high, and superheater 12 ft. diameter, 27 ft. 10 in. high, both filled with checkerbrick, with a waste heat boiler on each set.

The building consisted of ground floor (at yard grade), mezzanine and operating floors. It was of brick of quite elaborate and costly construction with a temporary end arranged for a future extension.

All clinkering was done from the mezzanine floor by hand. Operation of the sets was manual at first; later, about 1922, automatic, and performed on the upper floor.

The manufacturing materials used from 1907 to 1929 consisted of gas oil of various grades, and for generator fuel, hot retort coke, anthracite coal and by-product or other coke of various grades.

At no time during the years 1907 to 1929 did the production capacity of this plant exceed 3,300 M.c.f. per set per day.

Double Generators Removed

In 1928-29 the double generators were removed and a single 9 ft. internal diameter mechanically clinkered (U.G.I. design) generator substituted. The height of the three carburetters and superheaters was increased by 5 ft. Using gas oil, these carburetters had been operated for several years (1922-1929) without checkerbrick. The wash boxes and gas offtake connections were enlarged. Blast piping was, in some respects, enlarged. Blowing capacity was increased. No changes, except as noted, were made to the carburetter or superheater. Coke handling and storage, which had been absent up to this time, were installed.

At the same time there was a radical change in the character of the oil and generator fuel used. Use of gas oil ceased and heavy fuel oil was substituted. By-product coke of high grade, free of fines, of low ash content (7%) and properly sized, was available and was used exclusively for fuel from 1929 to the present, and continues. It is to be noted, however, that under 1945 conditions the ash of the coke is between 8 and 9%.

As a result of all these changes there was a major increase in production capacity of the sets from 3,300 M.c.f. maximum to 6,000 M.c.f. (usual condition) to a record of 7,000 M.c.f. upon one occasion for a few days. As of 1944 the capacity of the three sets was about 6,000 M.c.f. each per 24 hours of gas of .7 specific gravity and 530 B.t.u. per cu.ft. It is impossible to say which of the changes described above contributed most to the increased capacity obtained.

New Water Gas Sets Installed

During the year 1944 an extension to the generator house was built and two water gas sets of the latest design (United Engineers & Constructors, Inc.) were installed completely new, together with an additional blower capable of delivering 40,000 cu.ft. of air per minute at 75 pounds pressure (water column) connected to the blast system, furnishing air to all sets.

The house extension was designed of the same general outline and floor arrangement as the original building but of the simplest construction possible with adequate safety to provide shelter for the operating force and protection from freeze-ups of the hydraulic water system.

The new generators are of 10 ft. x 9 ft.* internal diameter, connected to carburetters 12 ft. in diameter, 25 ft. high (no checkerbrick), and superheaters 12 ft. in diameter, 34 ft. 4 in. high containing 12,150 checkerbrick each. The waste heat boilers, one to each set, have 5,540 sq.ft. of heating surface. The generators are fitted with mechanical grates of design very similar, except as to driving mechanism, to those of the three older sets. (All five sets are automatically operated) The wash boxes are rectangular with rounded ends, 10 ft. x 13 ft. 6 in., with gas offtake main, 48 in. in diameter, to existing condensers.

It was expected, when the layout was made, that these new sets at Station B would make 6,500 to 7,000 M.c.f. per day, or in other words, that the new equipment would bring about an increase in daily capacity of 14,000 M.c.f. to its total 1944 rated capacity.

The installation of the new equipment was completed in December 1944 and started into operation about January 1, 1945.

The three old and two new sets operated practically continuously from January 1 to March 15. Their production, however, was metered along with water gas manufactured in another generator

* Note: The designation 10 ft. x 9 ft. means that at the grate line the internal diameter is 9 ft. increasing to 10 ft. at a point about 6 ft. above the bottom of the grate.

house and its volume could be estimated only. However, the indications (which are fairly reliable and more or less checked by short periods of operation of No. 2 House alone) are that the five sets of No. 2 House were making about 7,100 M.c.f. each per 24 hours, and that this rate of make was maintained for the period January 1 to March 17. At this date the two new sets were shut down for inspection.

Because the generators of all five sets were being blasted at the same rate, it may be assumed that all five sets were making at the same rate. Detailed discussion of this occurs further on.

As experience with operation of this plant progressed it became evident that when the off-peak season for gas demand (that is in the months of June, July and August) occurred, it would be possible to operate two of the sets of this generator house alone and carry the whole required water gas production of the Station B Works, thus making it possible to meter their production separately from any other production and obtain definite figures as to production capacity, oil and coke consumption, tar production and quality, and other valuable data.

Tested for Maximum Production

The objective of first importance was to find the maximum production capacity of the new sets, using the highest rate of generator blast possible with available blowing equipment.

It was recognized that the highest practical blast rate would be that above which the coke of the generator fire would be lifted and carried over into the carburetter. To find this limit, in terms of cu.ft. of air per minute, is important, because that would indicate whether or not further increase in gas production could be obtained by installation of more powerful blowers.

The Station B Works was required, throughout July and August, to make not less than 15,500 M.c.f. of 530 B.t.u. water gas. That would mean then that at least two sets must operate continuously. It was known that with two sets operating a constant generator blast rate of 20,000 cu.ft. per minute could be maintained with sufficient secondary air available to burn the blast gases above the fire top and in the carburetter and superheater. As an average production of 7,100 M.c.f. of gas had already been obtained, over a period of ten weeks, using a blast rate of 15,000 cu.ft. per minute, it seemed possible that with 20,000 cu.ft. per minute, a larger production could be obtained, at least sufficient to meet, with two sets, the above mentioned total requirement.

At the present time two types of carburetting oil are available. One, a heavy residuum of high viscosity, 600 sec. Saybolt Furol at 122° F. maximum, Conradson Carbon usually about 7% to 8%, and ash content (mostly soda) of usually 1.25% to 1.5%. The other, an oil sold under the Bunker C specification, but having usually a viscosity Saybolt Furol at 122° F. of under 30 seconds, Conradson Carbon under 4%, ash content usually under .25%. Both these oils have an enriching value, as determined on the Laboratory testing apparatus, of about 100,000 B.t.u. per gallon.

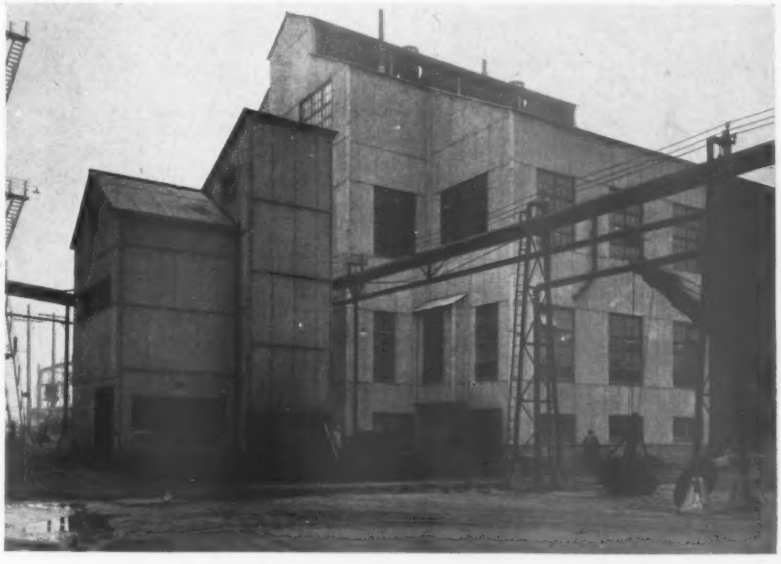
It was planned then to make test runs as follows:

(I) With the two 10 ft. x 9 ft. sets, using the Bunker C oil alone.
(II) With two of the 9 ft. sets, using the higher viscosity oil.
(III) With two of the 9 ft. sets, using Bunker C oil.
(IV) With the two 10 ft. x 9 ft. sets, using the higher viscosity oil.

Each trial run to be of sufficient duration to give results from which trustworthy deductions could be made as to limitations and possible improvements.

Another important objective of the test runs on the older sets was to determine the existing "bottlenecks." Therefore, a study was made of the pressure losses in the blast main system, the set proper and the process steam supply to discover whether or not it was possible, by structural changes, to reach a still higher rate of gas production.

In Test I the coke used was approximately a 50/50 mixture of common egg size, i.e. through 2 in. and over 1¾ in. screen, and larger coke, over 2 in. screen. In Tests II, III and IV, the larger coke was used almost exclusively.



Completed building of generator house extension

Details of these test runs are given on subsequent pages.

A brief statement of the conclusions reached is as follows:

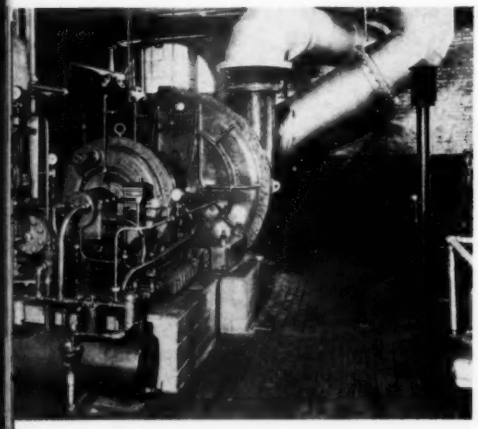
Test I showed that with 20,000 cu.ft. per minute generator air rate and low viscosity, low coke oil, i.e. the Bunker C, the two 10 ft. x 9 ft. sets made, for 15 days, an average production of 10,119 M.c.f. each, of 530 B.t.u. gas of .69 to .72 specific gravity.

It was also determined that with a momentary blast rate above 28,000 cu.ft. per minute, objectionable quantities of coke would be blown over into the carburetters. This blowing over of coke evidently was caused by a surge or sudden increase in blast air rate to the gen-

erator which occurred near the end of each blow for a few seconds, between the time of closure of the secondary air valves and the closure of the stack valve.

During the first three days of operation at this rate of production there were indications of insufficient cracking of the oil, as indicated by the high sulphonation residue of the tar produced. This fault was corrected by an increase in length of blow and slight increase in superheater temperatures.

Test III, with Bunker C oil, showed that with 20,000 cu.ft. blast rate two



Turbine-driven water gas exhauster after completion and after a few days' operation

Progress of construction of four 10,000-bushel dry box purifiers

9 ft. sets would make nearly as much gas as was made on the two 10 ft. x 9 ft. sets, the rate per running hour being just about the same, but because the Bunker C oil actually used had higher Conradson Carbon than that of Test I, more time was lost removing carbon from the carburetters, resulting in fewer actual running hours per set day. These two sets actually made an average of 9,313 M.c.f. of 530 B.t.u., .69 to .71 specific gravity gas per day for four days.

Test II, using high coke oil, on the 9 ft. sets and same blast rate, showed a production per running hour slightly lower than with the Bunker C oil. The make per day, however, due to lost hours removing heavy carbon deposit from the carburetters, was markedly reduced from that obtained in Tests I and III. On this test the 9 ft. generator sets made, for 17 consecutive days, an average of 8,393 M.c.f. of gas of same quality as in Tests I and III, i.e. 530 B.t.u., .69 to .73 specific gravity.

No Clinker Removal Trouble

At no time was there any difficulty with clinker removal from the generators during Tests I, II and III.

Test IV, using the 10 ft. x 9 ft. generator sets and the high coke oil, also showed a marked reduction in daily capacity as compared with Test I using the low coke Bunker C oil, due again, not only to lost time removing carbon, but also to an occasional failure of the grate to remove clinker with lost time required to correct the trouble. The effect of the relatively high soda content of the ash of the oil is to lower the fusion point of the ash of the generator fuel, resulting in a very dense hard clinker. The grates of the straight 9 ft. (old) sets could handle this condition without trouble. The restricted diameter of the 10 ft. x 9 ft. design caused clinker removal to be irregular.

These sets made, for seven days, 7,793 M.c.f. per set day of 530 B.t.u. .71 specific gravity gas.

These figures are to some extent checked by another run (Test IV_1) of eight days with the 10 ft. x 9 ft. sets, during which the oil had a higher viscosity, higher Conradson Carbon and higher ash content than in Test IV, and during which the average make per set day was 7,508 M.c.f. of gas of 530 B.t.u. and .72 to .75 specific gravity. The difficulties with lost time due to clinker and carbon removal were similar to those of Test IV.

For detail results of the four Tests see Appendix "B."

From the experience of these four tests it may be deduced that—

(1) Up to the point where the coke is blown out of the generator in objectionable quantities, i.e. about 28,000 cu.ft. per minute, higher generator blast rate results in increased production.

(2) An increase in the blast rate from 15,000 cu.ft. per minute to 20,000 cu.ft. per minute resulted in an increase in gas production from 7,100 M.c.f. to about 9,000 M.c.f. per set day.

(3) When using an oil similar to the Bunker C used in Test I, a production of 10,000 M.c.f. per set day may be expected from a set of the design of the 10 ft. x 9 ft. sets used in Test I.

(4) The coke and ash content of the oil used in carburetting has not much effect on the make per running hour, but does have a marked effect on the 24-hour production.

(5) Clinker removal is hampered in the 10 ft. x 9 ft. design. A generator of this design is more likely to clinker up than one with vertical sides as in the 9 ft. design.

In reading the previous paragraph and the third paragraph in the middle column it must be understood that this is a correct deduction from the results obtained in July and August while comparing the operation of the 10 ft. x 9 ft. and straight 9 ft. generators when using an oil whose coke and ash content are unusual and present some difficulties not present with many other types of oil. It is to be noted that no clinker difficulty was had with the 10 ft. x 9 ft. generators when using a low coke low ash oil. It is to be further noted that between Jan. 1 and March 17, 1945, the 10 ft. x 9 ft. sets lost but 56 hours due to clinkered fires while using a blend of Bunker C oil and high coke residuum whose coke content was from 2% to 6%, and ash about .7% to 1%.

(6) Even at the rate of production obtained the oil cracking surfaces of all the sets is sufficient to properly crack the oil necessary to produce gas of 530 B.t.u. and .7 specific gravity. Attention is called to the fact that the average rate of oil input on those sets in Tests I and III was 130 gals. per minute, and at times as high as 175 gals. per minute, but that even at high rate of oil input, the oil efficiency and character of tar indicated proper cracking of the hydrocarbons of the oil.

(7) From observation of pressure losses through the blast main system and sets of the older design, it is apparent that these may be reduced and production capacity increased to be equivalent to that shown in Test I on the newer sets. However, with the larger sized fuel being used exclusively in the 10 ft. x 9 ft. sets, the generator blast rate can be increased above the 20,000 cu. ft. per minute used during these tests, and therefore it is quite probable that the make of 10,000+ M.c.f. per set per day can be exceeded.

The indications are that with a relatively small cost, an increase of over 1,000 M.c.f. per day for each of the three old sets may be realized, provided at the same time oil of relatively low ash content, under 4% Conradson Carbon and 100,000 B.t.u. per gal. enriching value, is available.

	9 ft. Sets	10 ft. x 9 ft. Sets
Top of generator	41"	16.5"
Top of carburetter	27"	14.0"
Outlet of waste heat boiler	7"	1.25"

(The latter pressures were taken at the inlet to the stack valve on the waste heat boiler stack.)

Detection of Limitations to Production Capacity of Three 9 Foot Generator Sets

During the tests made upon the 9 ft. diameter mechanical generator sets, designated Tests II and III, observations were made of pressure losses through the blast system and at several points within the sets during the blast period for the purpose of determining what structural changes could be made which would make possible a higher generator blast rate and resultant increase in production capacity. The following conditions were found:

With 20,000 cu.ft. of generator air and approximately 10,000 cu.ft. of secondary air passing through the sets, and with 64 inches of water pressure in the blast main, the pressures through the sets were as shown in the table above.

Comparison of these pressure losses with those existent in the larger 10 ft. x 9 ft. generator sets under similar conditions leads to the conclusion that by increasing the size of the generator-carburetter connection, increasing the size of the stack valve from 30 in. to 42 in., and rearrangement of certain parts of the blast main system, it will be possible, with one additional blower, to increase the generator blasting rate from a present maximum obtainable of 20,000 cu.ft. per minute to 23,000 cu.ft. per minute, which is the maximum now obtainable on the 10 ft. x 9 ft. design.

From experiences of the test work done during this period, it is to be deduced that an increase in production capacity will follow in almost direct proportion to an increase in the generator blast rate. Therefore, if the blast of the three older sets (9 ft.) is increased 15%, an increase of 15% will be realized in the production rate. Test III showed a production rate of 9,300 M.c.f. of 530 B.t.u. gas per day. If a 15% gain is realized, this would be 1,395 M.c.f. per set day, or 4,185 M.c.f. for the three sets.

Examination of the steam supply for these older sets was made at the same time as the blast air supply, and the deficiency noted.

A correction of all the deficiencies mentioned (steam and air supply) is estimated to cost $62,000, and has been projected for the coming year. If secured, the cost of the increase in generating capacity of the plant will be about $15 per M.c.f. of capacity added.

Capacity of Condensers and Dry Box Purifiers

In connection with the work of the Gas Production Research Committee some of our members have raised the question of the capacity of these two items of equipment.

There are many types of equipment designed to cool gases under many varying conditions. There is no such thing as a design "Standard" for the industry.

The same statement can be made regarding dry box purifiers. The question of capacity for H_2S removal is still further complicated by the variations in the quality of the fresh unused oxide available, and still further by the great variations in the condition of the oxide in use at any specified time or period of time. *(Continued on next page)*

"That Man"

BY COL. WILLARD F. ROCKWELL

President, Pittsburgh Equitable Meter Company

● If a stranger in these parts were to ask almost any of our employees, "Who is the Big Boss in this business?", they might give my name; but I protest that I am not the Big Boss.

The Big Boss of this business is a pitiless slave driver, and there is no law to prevent him from forcing me to work overtime or from throwing me into the scrap heap if I do not produce results satisfactory to him. But he is honest, he is thrifty, and no one pays better for producing efficiently.

He insists that we turn out products as he wants them, at the time he wants them, and at a price which he wants. There is no appeal from his edicts. If we neglect our work, or if the quantity and quality of production fall off, we shall be forced to look for another job or maybe apply for the dole.

"That Man"—the Big Boss—is *the customer.* As long as we are engaged in free, private enterprise, we are the slaves of "that man." He does not have to buy from us, because we have competitors; and, if he does not buy from us, our competitors will get all his business and we shall be unemployed, unless we can find another place where "that man" will give us another opportunity.

If it were not for "that man," we could raise our prices, increase wages and salaries, pay bigger profits to our stockholders, and pay bigger taxes to the government. But the minute "that man" decides that our product costs more than a competitor's product, or that our product is not as good as a competitor's product, he will take his business away from us. On the other hand, if we make a better product than our competitors, he will increase our business, and he is willing to pay more if he decides our product is worth more. . . . .

There are some people who think "that man" will buy only goods made in the United States; but "that man" is free to buy anywhere. If he thinks that English woolens are a better value than American woolens, he will buy the English woolens. We may howl that it is not fair because the English workman receives lower wages and has a lower "cost of living," but we cannot stop him from buying English goods. . . . .

"That man"—the customer—can make or break any business. It is possible to fool "that man" ocassionally and to sell him an inferior product at a high profit; but he is sure to find it out eventually and, when he does, his punishment is swift and sure.

When we have money to spend, we think and act just like "that man." We prefer to buy from the manufacturers or producers who have a good reputation with "that man." And if we are dissatisfied with the price or the quality, "that man" will be very much influenced by our experience. . . . .

If the government only could control "that man," it would be a great boon to all mankind; but President Roosevelt, who had more power than any other president, once stated clearly that we could not gather together in Washington the necessary talent, experience, statistics, and intelligence to work out all of the problems for "that man" or even calculate the influences which govern "that man's" actions.

Sometimes we love "that man," and sometimes we hate him; but as long as we live in this world and try to earn our living, "that man" is going to be the Big Boss. We may think occasionally that he does not always deal fairly; but, in the long run, it is fairly certain that he will give us just what we deserve—no more—no less!—Extract from the Sept.-Oct. 1945 *The Flow Line.*

Condensers

As to Philadelphia experience with condensers—

Since 1925-26 all water gas manufactured in the two plants has been cooled from wash box outlet temperatures of 185-195° F. to a temperature as low as was possible with water available as to volume and temperature. The volume available has always been ample. The temperature of the water is determined largely by seasonal weather conditions.

Since 1926 all condensers in use are of the multipass-multitubular type with water inside the tubes. With this type of condenser it is possible to cool crude water gas to within four degrees above the temperature of the inlet water under the most advantageous rate of operation.

By actual field tests, run at different times over the past years on condensers installed in 1925-27, it has been shown that the rate of heat transfer obtainable is about 16 B.t.u. per square foot of cooling surface per degree difference per hour between gas and water temperatures. It has also been shown that the capacity (one condenser) of this type to pass gas is about 500 M.c.f. per hour with a pressure loss of not over 8 in. water column. Condensers of the same type, and of the same base area and height, but of more recent design, are capable of obtaining a rate of heat transfer of 40 B.t.u. per sq.ft. per degree difference in gas and water temperature, and to pass up to 1260 M.c.f. per hour with loss in pressure of not over 5.1 in. water column.

From this data it will be seen that highly efficient condensers are available to the gas industry which represent a remarkable advance in efficiency and a corresponding reduction in investment.

Dry Box Oxide Purifiers

There are in existence a number of formulae for determining the size and capacity of dry box purifiers for any given set of conditions. The indications of these formulae vary considerably—some being much more conservative than others—in the computation of the volume of oxide necessary to purify 1 M.c.f. of water gas of varying H_2S content.

The Philadelphia Gas Works, and specifically the Station B Works, whose water gas production we have been discussing, uses dry box purification exclusively. There are a number of series of boxes so valved as to be used in two or four box series. All inlet gas connections are at the bottom—outlet at the top. All have two layers of oxide per box, varying from a depth of 4 ft. 0 in. per layer in the older boxes to 6 ft. 0 in. per layer depth in those of newer design.

Revivification of the oxide has been practiced on all boxes for over 20 years. Continuous partial revivification is accomplished by admission of 1½% to 2% of air to the inlet box. The oxygen in the purified gas is maintained at not over 1%.

The actual capacity of the Station B boxes, observed last winter, may be judged from the following data:

During the entire period of peak production of water gas in the winter of 1944-45, which was an all-time high for this plant, and specifically during the maximum day of that time, H_2S was "absent" from the Station B water gas according to the definition quoted below:

"The gas shall contain not more than a trace of sulphuretted hydrogen. The gas shall be deemed to contain not more than a trace of sulphuretted hydrogen if a strip of white filter paper moistened with a solution containing 5% by weight of lead acetate is not distinctly darker than a second paper freshly moistened with the same solution after the first paper has been exposed to the gas for one minute in an apparatus of approved design through which the gas is flowing at a rate of approximately five cubic feet per hour, the gas not impinging directly from a jet upon the test paper."

(Specification of The Philadelphia Gas Works Company's Operating Agreement with the City of Philadelphia)

All papers showed clean except a very slight tinge at one time on one stream. The average grains per 100 cu.ft. for the 24 hours, taken at the Works governor, was 0.05 of a grain per 100 cu.ft. This quantity will not show under above definition of "absense" of H_2S.

The average H_2S present in the crude water gas was 150 grains per 100 cu.ft. The total volume of oxide in use was about 125,000 cu.ft. All of this was in use on the maximum day. The character of the oxide in the boxes in its "unused" or "fresh" state was about average. It was all purchased and came from four different suppliers. None was as good as the German Lux used so extensively prewar.

The follow- *(Continued on page 566)*

Gas Range Takes Part In Epic-Making Flight

A UNIVERSAL gas range was a part of the cargo in the epic-making, Chicago-to-London flight conducted by American Airlines System on Monday, November 19. The range was consigned to the British Ministry of Supply by the A. J. Alsdorf Company, export agent for Cribben and Sexton Company.

Thousands viewed the huge plane at Chicago's Municipal Airport on November 18, when christening ceremonies included speeches by Chicago's Mayor Kelly and Governor Green of Illinois. Among those present on the speaker's platform were George D. Wilkinson, president of Cribben and Sexton Company, and other company officials. Thousands more witnessed the take-off the following day—the start of a weekly commercial service between Chicago and London.

The plane is a four motored DC-4, commercial version of the famed C-54 Skymaster. It carried twenty passengers, a crew of seven, 1100 pounds of mail, and 500 pounds of regular freight. The gas range comprised the bulk of the latter weight. This is the second history-making event in recent months that has focused nationwide attention on the gas industry. On July 11, 1945, Cribben and Sexton Company shipped fifty-five gas ranges via American Airlines from Chicago to Los Angeles in only 10½ hours. This was said to be the first time in aviation history that a full freight carload of durable goods were shipped across the country.

Cribben and Sexton Company's Sales Manager, John E. Bogan (left) and Advertising Manager, John J. Brandt, make a last minute check-up on the gas range that was flown by American Airlines in the first direct commercial Chicago-London flight

Members of the A. G. A. Subcommittee on Approval of Domestic Gas Copy, consultants, representatives of advertising counsel and guests review the gas industry's national advertising program at St. Louis, November 14 and 15. Seated, extreme left: W. H. McInnis, Ebasco Services, N. Y.; Thos. H. Spain, Public Service Electric & Gas Co., Newark, N. J.; Noel Mallaby, McCann-Erickson. Seated at table, left to right: Clayton G. Cassidy, The Peoples Gas Light & Coke Co., Chicago; Frank C. Packer, Payne Furnace & Supply Co., Beverly Hills, Calif.; Newell E. Loomis, Michigan Consolidated Gas Co., Detroit; Col. John H. White, Jr., A. G. A.; Gussie O. Jones, Atlanta Gas Light Co.; W. L. Hutcheson, Manufacturers Light & Heat Co., Pittsburgh; Margo Sherman, McCann-Erickson; J. J. Quinn, Boston Consolidated Gas Co.; C. W. Person, A. G. A.; Alfred Hirsh, Laclede Gas Light Co., St. Louis; W. C. Grant, Lone Star Gas Co., Dallas; G. A. Saas, Citizens Gas & Coke Utility, Indianapolis; L. C. Ginn, American Stove Company, Cleveland; W. M. Jacobs, Southern California Gas Co., Los Angeles; Arthur P. Kelly, Rochester Gas & Electric Corp.; Wm. B. Hewson, The Brooklyn Union Gas Co., Brooklyn, N. Y.; Standing, left to right: R. K. Stover, McCann-Erickson; W. E. McKeachie, McCann-Erickson; R. D. Lewis, Laclede Gas Light Co.; Kenneth Fellows, Houston Natural Gas Corp.; R. J. Canniff, Servel; Henry Obermeyer, Consolidated Edison Co. of New York; R. J. Vandagriff, Laclede Gas Light Co.; Wm. Harrison, McCann-Erickson; Thos. P. McMahon, McCann-Erickson; H. Vinton Potter, A. G. A.; Roger A. Gordon, Washington Gas Light Co., does not appear in the picture.

Rate Structure Committee Reports

AN aid in the use of the annual reports of the Rate Structure Committees of the American Gas Association is now available in the form of an eight-page mimeographed booklet. A brief summary of the report of each chairman and a listing of the contents of the appendices to the reports are given. It was prepared by Hazel King, librarian of the American Gas Association.

The booklet is entitled "Resumé of the Rate Structure Committee Reports of the National Commercial Gas Association, American Gas Association and the Rate Committee Reports of the American Gas Association from 1938." Copies may be secured without charge by applying to the American Gas Association, 420 Lexington Avenue, New York 17, N. Y.

Community Promotion Becomes Popular

COMMUNITY promotion — proclaiming the merits of an individual city and its industrial and trading area has moved into the forefront as a successful advertising theme for the nation's privately operated public utilities.

New York and Chicago utilities, not to be outdone by companies in other sections of the country, notably the Gulf South, which have already jumped into this public service field, have launched their own campaigns. Most recent effort along this line has just been started by Pacific Gas & Electric Company, San Francisco, which plans to invest $100,000 in national advertising during the next six months to prove that northern California is the "industrial center of the new Pacific World."

Running in magazines and Wall Street Journal, Pacific Gas & Electric Company's ad drive may be extended beyond the initial schedule. Batten, Barton, Durstine & Osborn is the newly appointed agency in charge.

Southern California New Gas Projects

DRILLING was stopped on the Southern California Gas Company's wildcat operation in the Playa del Rey field and the well abandoned on November 9 after discovery of wet sands and no commercial accumulations of gas. It was the first such operation by the company since 1928 and was part of an extensive program to improve supply and distribution in preparation for a heavy winter load.

Among the projects now under way to reinforce the gas transmission system are additional piping and facilities for the company's Playa del Rey storage facilities, a new 26-inch line to Santa Fe Springs and a reinforcing line in the San Joaquin Valley area which will tap a new source of supply at the Burrell oil field above Lemoore.

Cost of the expansion program is expected to approximate $1,300,000.

Advertising Committee Maps Program in St. Louis

WITH practically a 100% attendance, the A. G. A. Subcommittee on Approval of Domestic Gas Copy met in St. Louis for a hard-working two-day session on November 14 and 15. Joining the meeting were consultants to the committee, six staff members of the New York office of McCann-Erickson and three representatives of the Laclede Gas Light Company, J. J. Quinn, chairman of the committee, presided.

Some of the subjects on the heavy agenda were: current publicity activities, readership ratings of the national ads for the first six months of 1945, report on tests of kitchen color combinations, discussion of the CP trademark, progress report on the proposed New Freedom Gas Kitchen booklet, discussion of policy on developments in kitchen ventilation and a report and discussion on radio.

The committee voted to retain the present campaign without any major departure in theme or objective. There will be a slight shift of emphasis in the so-called New Freedom Gas Kitchen ads starting with March and April insertions. The text of these ads will contain more specific selling copy on the latest developments to be found in gas appliances.

The committee was of the opinion that the present campaign is one of the most effective developed in the nine years of national cooperative advertising in behalf of gas fuel and gas appliances.

Officers of the Mid-southeastern Gas Association—Left to right: First Vice-President C. B. Zeigler, President A. E. Jones and Second Vice-President L. A. Scott

Mid-Southeastern Annual Gas Meeting

A. E. JONES, Tidewater Power Co., Wilmington, N. C., was elected president of the Mid-Southeastern Gas Association at the seventh annual meeting of that organization which took place November 15-16 at Raleigh, N. C. C. B. Zeigler, Public Service Co. of North Carolina, Inc., Gastonia, N. C., was named first vice-president and L. A. Scott, Duke Power Co., Greensboro, N. C., was selected for second vice-president. Edward W. Ruggles, North Carolina State College, was re-elected secretary and treasurer. The presiding president was J. S. Rider, Consolidated Utilities Corp., Sumter, N. C.

The well-rounded program attracted a large attendance.

Following the address of welcome Thursday afternoon, Nov. 14, by Colonel J. W. Harrelson, chancellor, North Carolina State College, H. Carl Wolf, managing director, American Gas Association, presented a stimulating discussion of planned action for the manufactured gas industry. His remarks are contained in the leading article in this issue of the MONTHLY.

A large part of the first session was devoted to a presentation of the all-gas merchandising program by Ralph Kaylor, Surface Combustion Corp., Toledo. This dramatic, timely "Quick-Get-away Plan," a basic promotional program, is now being presented in an industry-wide series of meetings under the sponsorship of the Residential Gas Section of the American Gas Association.

Tackling a subject of increasing importance, Captain A. R. Stryker, Lawrenceburg Gas Co., Lawrenceburg, Ind., gave an able description of problems overcome in LP-gas conversion.

The Friday morning meeting opened with "A Preview of Things To Come," a presentation of the A. G. A. Refrigeration Committee, including a discussion of the Servel ventilated New Freedom Gas Kitchen Program by N. E. Wooter, assistant vice-president, Servel Inc. H. Vinton Potter, director, A. G. A.-A.G.A.E.M. New Freedom Gas Kitchen Program, then told the audience how to merchandise this national program locally. A description of the A. G. A. sales training program entitled "Green Troops Don't Win Battles," by F. W. Williams, secretary, Residential Gas Section, concluded the morning session.

The final meeting consisted of a round-table discussion of six topics under the chairmanship of the president-elect, A. E. Jones. Speakers and their topics included: Gas distribution—W. B. Hambright, Atlanta; gas meter and governor maintenance and repairs—E. R. Gilmore, Pittsburgh; water gas manufacturing—K. W. Stookey, Cleveland; coal gas manufacturing—H. W. Gee, Johnson City; customer service record and appliance repairs—C. P. Hipp, Charlotte; and accounting—H. T. Buchanan, Wilmington.

A banquet was held Thursday evening, Nov. 15.

New directors elected at the meeting are D. A. Crawford, Atlanta; Eugene Leier, Columbia, S. C.; and Edwin Fulton, Richmond.

Gas Sales Decrease in October

OCTOBER sales of the gas utility industry are estimated to be 1,869,856,000 therms by the Statistical Bureau of the American Gas Association, a decrease of 2.4 per cent compared with sales totaling 1,915,755,000 therms in October 1944. The Association's new index number of utility gas sales was 163.5 for October (1935-39 = 100.0).

In the 12 months ending October 31, 1945 sales totaled approximately 25,283,803,500 therms, an increase of 2.2 per cent over the same period ending October 1944.

Manufactured and mixed gas sales in October were estimated at 217,305,700 therms, or a decrease of 0.6 per cent from sales in October 1944.

Sales of the manufactured branch of the industry increased 3.4 per cent in the 12-month period ending October 31, 1945, rising from approximately 2,855,915,000 therms in the period ending a year ago to 2,953,412,500 therms in the current year.

Natural gas sales were estimated to have decreased 2.6 per cent in October 1945, falling from 1,697,177,000 therms last year to 1,652,550,000 therms.

It was estimated that natural gas sales were 22,330,391,000 therms in the 12 months ending October 31, 1945 as compared with 21,875,846,000 therms in the same period ending 1944, corresponding to a 2.1 per cent increase.

A. G. A. Holds Midwest Personnel Conference

C. C. Jolley

THE sixth meeting of the A. G. A. Midwest Personnel Conference was held in Kansas City on November 8 with R. B. Harkins, personnel director, Panhandle Eastern Pipe Line Company as chairman. The meeting was opened by observations on current industrial relations problem from a national standpoint reported by Kurwin R. Boyes, secretary, American Gas Association.

The resignation of Mr. Harkins as chairman of the conference was received with regret. A resolution was adopted expressing the appreciation of his efforts in organizing the group and for his conscientious leadership as chairman. The conference then elected C. C. Jolley, personnel director, Natural Gas Pipeline Company, Chicago, as chairman, and H. F. Voertman, assistant vice-president, The Laclede Gas Light Company, St. Louis, vice-chairman.

H. F. Voertman

Considerable time was devoted to discussion of union contract developments of companies represented at the conference, especially on the problems involved in returning to a normal work week.

At the afternoon session Gerald Cole, Veterans' Training Officer of the Veterans Administration, outlined the operations of the Government's vocational rehabilitation program for veterans under public laws 16 and 346—"G. I. Bill of Rights," and answered a number of questions raised concerning company responsibilities, etc.

M. E. Jones, chief of veterans replacement, United States Employment Service, explained the operations which attempt to place the returned veterans in a job to the interest of both employer and veteran. Mr. Jones stated that the great majority of returning veterans are mentally and physically equipped for employment.

Bryant Organizes Industrial Division

Donald A. Campbell

BRYANT HEATER COMPANY, Cleveland, Ohio, long a prominent producer of domestic gas heating equipment, announces the establishment of an Industrial Division to handle the development and distribution of gas combustion components for industrial and process equipment.

Activity in the division, which is intended to round out the Bryant position in the gas industry, is centered on the development of an improved line of mixers, injectors, burners and specialized items of gas combustion equipment.

Initial products are announced as being a new proportional mixer (Bryant Flomixer); high and low pressure injectors (Hijectors and Lojectors); tunnel burners, combustion blowers, and opentype burners and cages.

The Industrial Division is under the direction of Donald A. Campbell, who has specialized in gas and combustion engineering since his graduation from the Engineering School of the University of Colorado in 1916.

Natural Gas Reserves Committee Meets

THE A. G. A. Committee on Natural Gas Reserves held its first meeting in New York on October 25, under the guidance of Chairman N. C. McGowen, president, United Gas Corporation, Shreveport, La., and Vice-Chairman Lyon F. Terry, of the Chase National Bank, New York City. At the organization meeting it was decided that the committee would make every effort to produce its first report on natural gas reserves in time for the annual convention next October. Subsequent annual reports will be planned for release in conjunction with the annual Spring Meetings of the Natural Gas Department.

New Gas Refrigerator Expected in 6 Months

LAST month, according to an article in *Business Week* (Nov. 17, 1945), Clayton & Lambert Manufacturing Company of Detroit announced plans to enter the gas refrigeration field with the manufacture of an air-cooled household model. This announcement came after Clayton & Lambert had purchased the Hoffman Gas & Electric Heater Company, Louisville. The Hoffman Company is now set up as a division of Clayton & Lambert and will continue manufacturing water heaters (gas, electric, and fuel oil) and in six months or so expects to be ready to market the gas refrigerator on which C. & L. initiated study some time ago.

The company did not indicate whether it plans to take advantage of the now-expired patents on the so-called Platen-Munters absorption machine, or employ the intermittent absorption principle from which the Platen-Munters unit was adapted.

In 1941, the last full year of refrigeration production before the war interrupted manufacture, gas refrigerator sales approximated 350,000.

Largest Gas Turbine

ALTHOUGH large natural gas turbines have been projected on paper for the United States, Brown Boveri Co., a Swiss concern, is now building what is believed to be the world's largest single natural gas prime mover. This new gas turbine will develop 15,000 H.P. and is planned for the gas and electricity works of Bucharest, Rumania.

The new unit is intended for peak load and standby power. Two stage combustion with one intercooler will be used. There will be no regenerator.

The power plant at Bucharest had two 9,000 H.P. diesels on oil and one 6,000 H.P. engine already converted to natural gas. Studies indicated that the cost of converting the two larger diesels would be greater than the cost of installing an entirely new gas turbine capable of producinug 10,000 kw.

The entire plant when finished will therefore have 21,000 H.P. on gas and the older diesels with 18,000 H.P. If the same sum of money had been spent on changing the two larger diesels to gas, the plant would only have had a capacity of 24,000 H.P. The relatively low expected thermal efficiency of the gas turbine (about 22% since there is to be no regenerator) is not considered a deterrent since this plant is only operated for peak loads and standby.—C. GEORGE SEGELER

Win A. G. A. Safety Award

D. P. Hartson, vice-president of the Equitable Gas Co., presenting the A. G. A. Million Man Hour Award to George H. Neilson, Jr., general superintendent of Production and Transportation, while H. H. Pigott, operating manager, looks on. Award was given the Production and Transportation Departments of the company for working 903 calendar days for a total of 1,029,000 man hours without a disabling injury accident

Consolidated Edison Installs LP-Gas Plant To Meet "Peak" Demands

CONSOLIDATED EDISON COMPANY of New York, Inc., is now increasing its gas manufacturing facilities by 10,000,000 cubic feet of gas a day by installing a propane or liquefied petroleum gas plant for emergency or "peak" demands. The installation, consisting of fourteen 25,000 gallon storage tanks, is being made at the company's Hunts Point plant in the lower Bronx, and will be completed before the high demand for gas during the cold spells of the coming winter.

The installation at the Hunts Point plant is being made by the Pacific Gas Corporation, of San Francisco, California. Similar installations are being made in cities on the Eastern seaboard, and hundreds have been made throughout the country. In some instances, small cities and communities depend entirely on propane plants for their supply of gas.

With Consolidated Edison, however, the use of the propane gas plant probably will be confined to the few days in winter when a protracted cold spell brings customer demand for gas close to the capacity of the company's gas plants. Upon completion of the propane plant, it is expected that the existing coke oven and water gas plants of the company will continue to be used as at present, with the gas from the propane plant added at times of emergency to care for peak demands caused by zero and sub-zero temperatures.

The propane plant is considered the cheapest method of increasing the Edison System's gas supply for emergencies. Total expenditures for the fourteen tanks, which are seventy feet long and 104 inches in diameter, with the necessary vaporizing and mixing equipment, will be about $400,000.

The propane gas, which is available at all oil refinery plants, will be mixed directly with the gas manufactured from coal and oil at the Hunts Point plant, when emergency conditions arise. Customers will not know when the propane plant is put to use, for their appliances will operate as efficiently as with straight manufactured gas. No adjustments of burners will be necessary.

Experience gained last winter showed the advisability of increasing the gas production facilities of the company to care in a flexible manner for the huge demand for gas on two or three days of intense cold, without "pushing" or extending the conventional gas making equipment of the System.

Natural Gas Demand Up in Houston Area

THE demand for natural gas service in the Houston, Texas, area has increased sharply according to the annual report of the Houston Natural Gas Corporation. There were 72,062 accounts billed at the peak period of the company's business in 1945, a gain of 6,498 over the comparable high mark in 1944. This represents an increase of 7.5% over the previous fiscal year in the Houston metropolitan area and a gain of 11.28% in the outside districts, making an over-all increase of 9.21% in accounts billed.

The operating income, which means gross revenue less gas purchases, operating expenses before depreciation, and taxes other than federal income taxes, totaled $1,493,879.16 as against $1,500,123.67 in the previous fiscal year, a decrease of $6,244.51 or 0.4%. It was also announced that gas sales to residential customers increased 2.3%, while the gas sales to commercial and industrial customers increased 0.5%.

A. G. A. Committee Studies Radio

AT a meeting of the A. G. A. Domestic Gas Copy Committee in St. Louis, November 14 and 15, a Subcommittee on Radio was appointed. This committee is charged with the responsibility of reviewing the entire field of radio, particularly the present trends in the more popular radio programs, and recommend a program or programs which they deem to be most appropriate for gas industry sponsorship.

This committee is to report at the next meeting of the Copy Committee to be held in New York, the second week of January 1946. Those appointed to the radio group are: Henry Obermeyer, Consolidated Edison Co. of New York; Chairman Clayton G. Cassidy, The Peoples Gas Light & Coke Company; W. M. Jacobs, Southern California Gas Company; Roger A. Gordon, Washington Gas Light Company and Gussie O. Jones, Atlanta Gas Light Company.

Heads Chicago Fact-Finding Body

THE Commonwealth Edison group of companies has announced the appointment of Milburn L. Forth as industrial economist to head up the research activities of their recently created territorial information department in Chicago.

A native of Evanston and a graduate of Indiana University, Forth has served as economist for the War Production Board in Washington for the past three years. Prior to his service with W.P.B. he was economist for the industrial division of the National Resources Planning Board.

The new department makes available factual data about Chicago and Northern Illinois. It will also serve as a "feeder" for the companies' recently launched advertising campaign designed to focus national attention on the inherent economic and geographic advantages of the Chicago and Northern Illinois area.

Increase Natural Gas Storage Facilities

RESERVE storage facilities of The Peoples Natural Gas Company in Pennsylvania have been increased to more than four and one half billion cubic feet during the past summer to prevent repetition of the natural gas shortage of last winter, according to E. M. Borger, president of the company.

This is an increase of about one billion cubic feet over available reserves last winter when industrial demands for war production and the diversion of gas from Peoples' territory by the government caused temporary curtailment of adequate supply. Peoples' West Virginia supplier, The Hope Natural Gas Company, also has its gas in storage by some eight billion cubic feet.

About $1,750,000 has been invested by Peoples in five underground storage pools which now are in use and in gas inventory, Mr. Borger said. All are located near the main transmission lines of the Peoples system so that they serve not only Western Pennsylvania but Peoples customers in communities as far east as Johnstown and Altoona.

Personnel Meeting in January

A MEETING of the A. G. A. Southwest Personnel Conference will be held at the Jung Hotel, New Orleans, January 11, 1946 beginning at 9:30 A.M. Howard Senyard, personnel director, Louisiana Power & Light Company, vice-chairman of the conference, is in charge of arrangements.

Pittsburgh Equitable Now Rockwell Mfg. Co.

STOCKHOLDERS of the Pittsburgh Equitable Meter Company voted Nov. 27 to change the name of the company to Rockwell Manufacturing Company and to split the stock on a four-for-one basis.

The change in name was prompted by the expansion and diversification of the company's manufacturing facilities. During the year, the company has acquired five new subsidiaries. The new name is that of the president and chairman of the board, Col. Willard F. Rockwell, who brought the Pittsburgh Meter Company and the Equitable Meter and Manufacturing Company together in 1927 to form the Pittsburgh Equitable Meter Company and has headed it since.

Foster to Glenwood

JOHN H. FOSTER, who recently resigned as vice-president and general manager of Florence Stove Co., has been elected vice-president of the Glenwood Range Co., Taunton, Mass. He took over his new duties November 1.

Commodity Specifications

THE new revised edition of the National Directory of Commodity Specifications, issued by the National Bureau of Standards, for determining whether an applicable standard specification exists for any commodity desired, has been issued. This, the third and enlarged edition, lists by title, designating number, and sponsoring organization, the specifications and methods of test for all commodities regularly produced in this country. Each specification is also briefly summarized as to technical characteristics, scope and special applications. These special features will aid the user of the Directory to select specifications suited to his particular needs.

Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at a cost of $4.00, domestic, and $5.25, foreign. Purchasers should specify that they want the National Bureau of Standards (Misc. Pub. M178) National Directory of Commodity Specifications.

LP-Gas Production and Use Trebles

A SURVEY made by the LP-gas industry under the direction of the Petroleum Administration for War, shows that the production and use of liquefied petroleum gases, including the separate fractions and mixtures of propanes and butanes, was 1.6 billion gallons in 1943, 3.8 billion gallons in 1944 and 4.8 billion gallons in 1945. This is a threefold increase during the period surveyed.

Ronald A. Malony Is Advanced

Ronald A. Malony

ADVANCEMENT of Ronald A. Malony, sales manager of The Bridgeport Gas Light Co., Bridgeport, Conn., for more than a decade, to the position of assistant to the president was announced last month by George S. Hawley, president of the company.

Prior to going to Bridgeport, Mr. Malony spent ten years in various United Gas Improvement Company subsidiaries including The Philadelphia Gas Works Company, of which he was assistant sales manager, and the Philadelphia Electric company.

Mr. Malony has been active in the American Gas Association and other utility trade organizations. He is president of the Bridgeport Community Chest and a former president of the Algonquin club.

New A. G. A. Members

GAS COMPANIES

Moran Utilities Co., Houston, Texas (W. T. Moran)*

Sioux City Gas & Electric Co., Sioux City, Iowa (G. A. Neal)

West Ohio Gas Co., Lima, Ohio (G. S. Vail)

FOREIGN GAS COMPANIES

Daniel Vela, S. A., Mexico, D. F. (Daniel Vela)

MANUFACTURER COMPANIES

Appliance Corp. of America, Milwaukee, Wisconsin (J. W. Chamberlin)

Armstrong Furnace Co., Columbus, Ohio (D. H. Kinnan)

H. C. Barnes, Inc., Long Beach, Calif. (H. C. Barnes)

Brown Steel Tank Co., Minneapolis, Minn. (H. K. Johnson)

W. T. Carmichael, Ltd., Ruddersfield, England (H. S. Graham)

Hart-Mun Furnace Co., Tulsa, Oklahoma (B. J. Hart)

The Lux Clock Mfg. Co., Inc., Waterbury, Conn. (W. A. Hersey)

Mills Industries, Inc., Chicago, Ill. (D. W. Donohue)

Stainless & Steel Products Co., St. Paul, Minn. (M. W. Bowen)

Strait & Richards, Inc., Newark, N. J. (R. F. Cleary)

Sunbeau Heater Co., Los Angeles, Calif. (T. H. Thiele)

Vulcan Proofing Co., Brooklyn, N. Y. (J. C. Dunn)

INDIVIDUAL MEMBERS

J. A. Andrews, Pacific Gas & Electric Co., Fresno, Calif.

Cecil E. Bales, The Ironton Fire Brick Co., Ironton, Ohio

E. R. Becraft, The Trane Co., La Crosse, Wisconsin

Herbert Briggs, Jr., Philadelphia Co., Pittsburgh, Pa.

Miss Margaret E. Burge, South Carolina Power Co., Charleston, S. C.

George W. Byrnes, Queensboro Gas & El. Appliance Co., Elmhurst, N. Y.

Miss M. Jeannette Clifton, Dept. Public Utilities, Richmond, Va.

Frank C. Culver, Day & Night Manufacturing Co., Seattle, Wash.

Euel E. Edge, A. O. Smith Corp., Houston, Texas

R. L. French, Union Gas Co. of Canada, Ltd., Ontario, Canada

Arthur E. Gartner, Consolidated Natural Gas Co., New York, N. Y.

Earl R. Hamilton, New England Power Service Co., Boston, Mass.

Edwin E. Hawley, California-Maine Corp., San Francisco, Calif.

Louis M. Hull, Hammel Radiator Engineering Co., Los Angeles, Calif.

C. H. Jamison, Pacific Gas & Electric Co., Fresno, Calif.

Conrad Laverdure, Quebec Hydro Electric Commission, Montreal, Canada

Henry G. Massey, Manchester Gas Co., Manchester, N. H.

George E. Mumma, Sears, Roebuck & Co., Chicago, Ill.

C. H. Pedersen, Pacific Gas & Electric Co., Fresno, Calif.

C. W. Prewett, Jr., California-Maine Corp., San Francisco, Calif.

Edwin A. Renfro, Stanolind Oil & Gas Co., Tulsa, Okla.

William C. Rodgers, Public Service Co. of North Caroline, Inc., Asheville, N. C.

F. O. Suffron, Hammel Radiator Engineering Co., Los Angeles, Calif.

Chester L. Taylor, Milford, Pa.

Pierre Thomas, Compagnie des Compteurs, Montrouge, France

P. W. Thompson, The Detroit Edison Co., Detroit, Mich.

P. A. Van der Meer, The Detroit Edison Co., Detroit, Mich.

J. K. Weyant, Pacific Gas & Electric Co., Fresno, Calif.

Edwin T. Williams, Williams Heating Engrs., New York, N. Y.

* Names in parentheses are Company Delegates of the American Gas Association.

BLUE FLAME ON THE MARCH!

(Continued from page 525)

The impetus of this fund has redounded to the benefit of the American Gas Association as a whole and this twenty-seven year old organization is now able to plan and to do things which its members have every reason to expect and to be proud of. Many contemporary activities of the Association are being augmented to keep pace with the research, advertising and promotional activities. A broad program of statistical information especially valuable for banks and security dealers, contacts with other organizations and agencies whose activities vitally affect ours, studies of rates, personnel problems and accident prevention, an active home service program, market and economic studies and particularly analyses of competing fuels. The list is a long and revealing one. In summary it spells coordination, cooperation, progress. Research, promotion, national advertising, statistical information, sales, technical, utilization and service problems are now coordinated in an overall working program centrally controlled and yet decentrally carried out so that the gas industry today presents a really coordinated, aggressive, serviceable front.

We have an industry more united than ever before. The realization that we face keen competition contributes to this unity. New leaders are arising, forcing the known and tried ones to greater heights. A feeling of expectancy and confidence is in the air. No wonder these enlarged, aggressive programs are unfolding. No wonder it can be said "The Blue Flame is on the March."

DEMAND METERING INSTRUMENTS

(Continued from page 532)

to outdoor temperatures, and some are in hot shops or near heating equipment. Spring-wound clocks are greatly affected by temperature, so that it is necessary to adjust the clocks of these recorders *after* they have been installed. There is little use in attempting to regulate the clocks in the shop before installing them, except to set them to run "fast" if it is known that they are to be in a cold location. Thus it is very desirable to make a couple of daily visits to new installations to reset and regulate the clocks to insure accurate timing over the period of a week under the temperature conditions of their locations.

EXPERIENCE AND EXAMPLES

Sales Surveys

In the fall of 1940 The Peoples Gas Light and Coke Company decided that information available concerning the characteristics of gas consumptions by residential customers in the Chicago area was insufficient and undependable. It therefore initiated a "load survey" (under the direction of Ralph L. Braucher and George Morgan of its Statistical Department) to determine quantities of gas used by various repre-

sentative groups of customers in typical residences of all sizes using various combinations of appliances. It was expected that this load survey would: (a) provide more concrete basis for estimating service pipe and meter sizes; (b) provide more reliable information regarding domestic load factors for cost allocations; (c) give a better basis for estimating hourly and daily consumptions in specific parts of the city, and for estimating maximum 24-hour demands; (d) would indicate average consumptions of gas by various appliances and combinations of appliances.

The survey progressed to the covering of approximately 300 domestic or residential customers before being halted by the war. Most of this work was done in the winter months of 1940-1941—with supplementary tests in the summer of 1941. Forty Rate Recorders were used, on customers' meters of 5B, 10B, 30B, 10/300, and 6C sizes—the minimum period of observation being two weeks. It is planned to resume this survey soon.

The "domestic load" survey was only one of a number that have been made in Chicago in the past to determine the size and nature of consumptions of gas by specific types of customers. One study was related to the practicality of using master meters and single-billing in serving government housing projects; another was for the purpose of setting special rates for gas used in newspaper linotype work from midnight to 4:00 A.M.; another to determine the range in gas consumptions that could be expected in hotel kitchen loads, etc.

Customer Complaints

The Rate Recorder has been frequently used in investigations of customers' complaints. When Alderman X protested about his bills being too high, a rate recorder installation disclosed consumptions of gas on Thursdays to be quite large. Further investigation disclosed that, because his wife was out every Thursday, the maids and four of their friends did the laundry for six or seven families in the Alderman's basement on that day. (A puzzling feature of the case was that he didn't notice the increase in his electricity bill.)

In another customer complaint case, involving a drug store in a nearby suburb, installation of Rate Recorders on the water meter and gas meter resulted in the discovery that 35% of the water being heated for the soda-and-lunch counter was going down the drain before being used—due to a tricky siphon connection to the automatic storage tank installed by a local plumber. (And water rates in small towns are pretty high.)

In a third case, the staff of an industrial plant was convinced that variations in pressure in gas delivered to forges was due to faulty operating controls of burners in nearby boilers and not to insufficient delivery main capacity or sticking gas pressure regulators.

In a reverse case, in which the company was "complaining" that certain restaurant owners were not abiding by the conditions of a special rate granted them, the installation of Rate Recorders provided enough evidence to convince the lawyers of a Restaurant Owners' Association that some of their clients would have to accept-billing at a higher rate.

Other Uses

In testing engine-driven distribution compressors, a record of the exact numbers of revolutions in stated periods was obtained by tying a second string from the steam-engine indicator-card cord to the lever of the counter of a Rate Recorder, and tripping the stamper manually at the end of each observation period.

The distribution of water consumptions in a small war plant was studied by installing Rate Recorders on six water meters in the plant—the original purpose being to obtain data for cost analyses. Faulty water usage that was discovered resulted in a 30% reduction in quantity used and a 30% improvement in application.

Conclusion

The Rate Recorder has been used in connection with a variety of meters—and may be used to record the number of operations or cycles within specified periods of time of almost any engine, machine, or apparatus that has a rotating or oscillating part to which attachment can be made. If the speed of rotation or oscillation of the engine or machine is greater than 75-80 per minute, the impulses to the recorder may be reduced by gear-train.

Convention Calendar

DECEMBER

4-7 •National Association of Railroad and Utilities Commissioners, Miami Beach, Fla.

1946

JANUARY

11 •American Gas Association Southwest Personnel Conference, Jung Hotel, New Orleans, La.

17 •New England Gas Association, Operating Division, Hotel Statler, Boston, Mass.

28 •Independent Natural Gas Association of America, Annual Meeting, Texas State Hotel, Houston, Texas.

31 Feb. 1-2 •Home Service Work Shop, Hotel William Penn, Pittsburgh, Pa.

FEBRUARY

4-6 •Home Service Work Shop, Hotel Muehlebach, Kansas City, Mo.

4-8 •National Metal Congress & Exposition, Cleveland, Ohio

7 •Gas Institute of New Zealand, Wellington, New Zealand

MARCH

21-22 •Southern Gas Association, Galveston, Texas

21-22 •New England Gas Association Annual Business Conference, Hotel Statler, Boston, Massachusetts.

28-29 •A. G. A. Conference on Industrial and Commercial Gas, Commodore Perry Hotel, Toledo, Ohio.

APRIL

8-10 •Mid-West Gas Association (place to be selected)

16-18 •A. G. A. Distribution Conference, Hotel Stevens, Chicago, Ill.

JUNE

3-5 •A. G. A. Production and Chemical Conference, Hotel Pennsylvania, New York, N. Y.

3-6 •National Fire Protection Association, Boston, Mass.

18-21 •Canadian Gas Association, 39th Annual Convention, Manor Richelieu Hotel, Murray Bay, Quebec

OCTOBER

Wk. of 7th •American Gas Association, 28th Annual Convention and Exhibition, Atlantic City, N. J.

Accounting Section

E. F. EMBREE, Chairman LEITH V. WATKINS, Vice-Chairman O. W. BREWER, Secretary

Accounting for Merchandise Sales

BY RALPH S. McGLONE

Chairman, 1945-1946 A. G. A. Customer Accounting Committee, The East Ohio Gas Co., Cleveland

and

W. C. WOLFF*

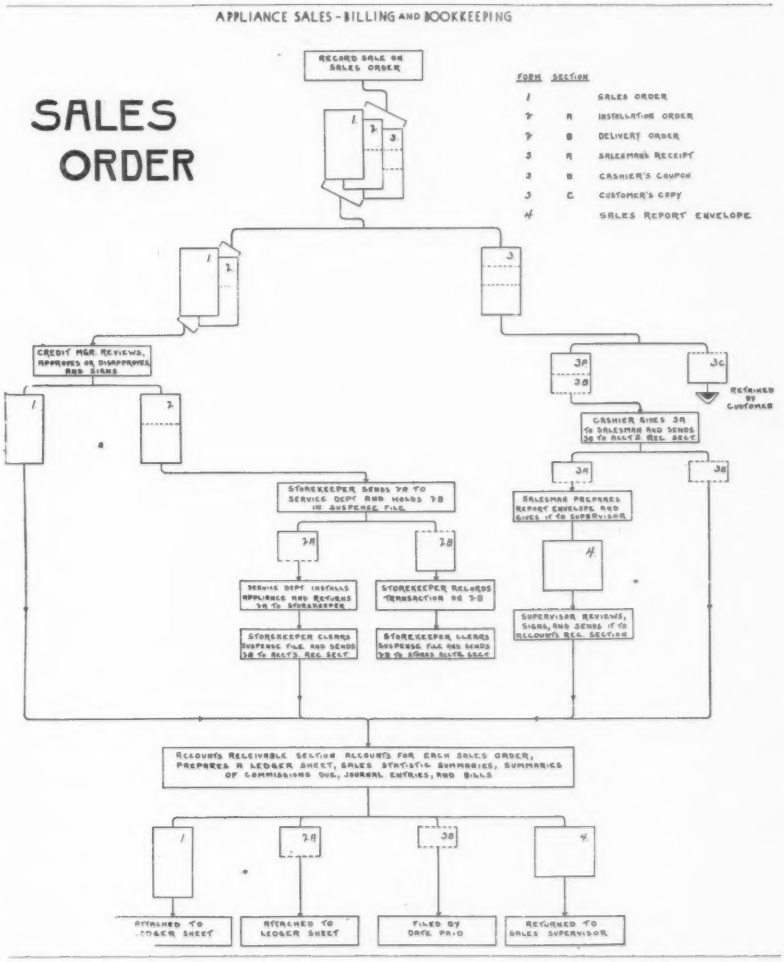
WHEN the subject of merchandise accounting methods was brought up for discussion before the 1944-1945 Customer Accounting Committee it was evident that the interest in this subject was not so much directed to a consideration of bookkeeping methods as it was to a consideration of ways and means to simplify and perhaps streamline the cumbersome procedures generally in use. The committee felt that this period of small volume merchandise sales was the ideal time to consider changes in merchandise accounting practices with a view to preparing to handle more efficiently the large volume of appliance sales that will result from the lifting of governmental restrictions.

It was felt that merchandise accounting methods generally had not changed materially from the methods outlined in the two most recent committee reports on this subject: (1) Report of Accounting Machines Committee—1937, outlining seven mechanical systems. (2) Merchandise Accounting Practices—1940, outlining one mechanical system and seven manual systems. Accordingly the committee felt that to present a report outlining existing systems would be covering ground already covered.

This paper is intended to outline a method of handling appliance sales based on a study of this operation in department stores. The method outlined can be used for installment sales and cash sales, and can also be adapted for use by companies who do not handle appliances themselves but accept orders for delivery and installation by dealers.

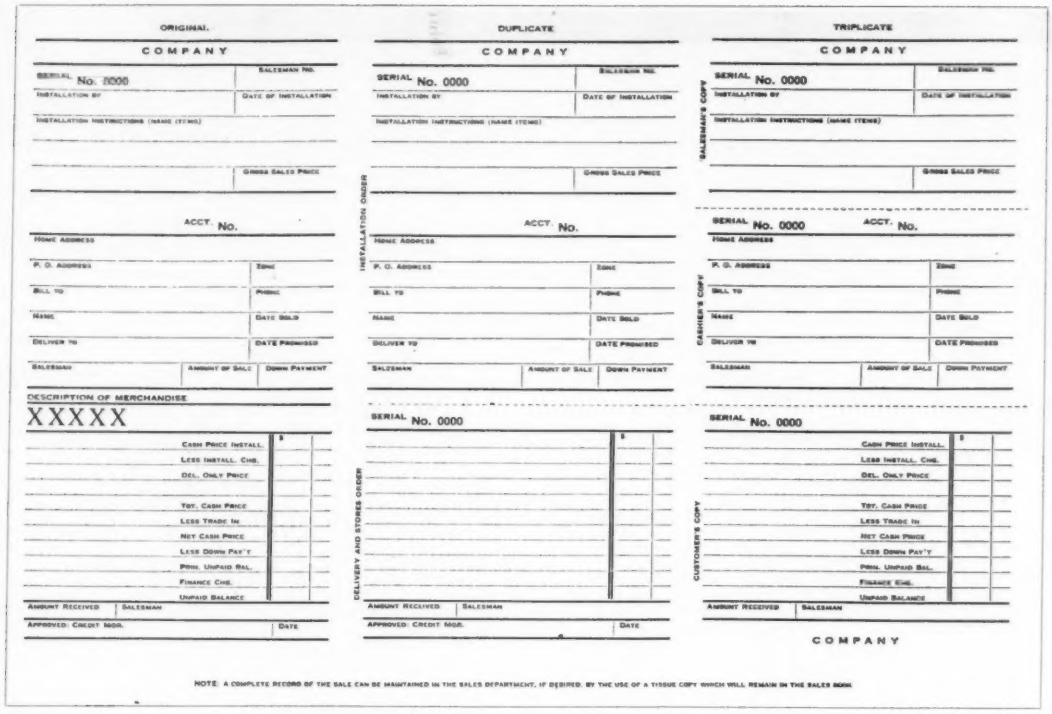
The Customer Accounting Committee is presenting this paper at this time for the sole purpose of stimulating thought about the present methods of handling appliance sales; particularly in relation to the number of forms used to accomplish an objective, and the burdensome detail of writing and re-writing the same information because of the multiplicity of forms. It is not presented as a standard method, but as a basic method that may be adapted by individual companies to fit their conditions and circumstances.

The basic premise of the method is that a sales book, such as we have all seen used universally in department stores, can be designed to perform most of the functions for which most of us now use separate forms. It streamlines the information and cuts the repetitive writing of the same information to a minimum. At first glance you are going to think that it is impossible to operate with so few forms and such skeletonized detail. However, by actual comparison with appliance sales forms now in use it is a fact that all the detail is there, and the perforated sections of the suggested forms will supply the necessary information to the required departments.


APPLIANCE SALES - BILLING AND BOOKKEEPING
SALES ORDER
RECORD SALE ON SALES ORDER
FORM SECTION
1 SALES ORDER
2 A INSTALLATION ORDER
2 B DELIVERY ORDER
3 A SALESMANS RECEIPT
3 B CASHIER'S COUPON
3 C CUSTOMER'S COPY
4 SALES REPORT ENVELOPE
CREDIT MGR. REVIEWS, APPROVES OR DISAPPROVES AND SIGNS
RETAINED BY CUSTOMER
CASHIER GIVES 3A TO SALESMAN AND SENDS 3B TO ACCTS REC. SECT
STOREKEEPER SENDS 2B TO SERVICE DEPT AND HOLDS 2B IN SUSPENSE FILE
SALESMAN PREPARES REPORT ENVELOPE AND GIVES IT TO SUPERVISOR
SERVICE DEPT INSTALLS APPLIANCE AND RETURNS 2B TO STOREKEEPER
STOREKEEPER RECORDS TRANSACTION ON 2B
SUPERVISOR REVIEWS, SIGNS, AND SENDS IT TO ACCOUNTS REC. SECTION
STOREKEEPER CLEARS SUSPENSE FILE AND SENDS 2B TO ACCTS REC SECT
STOREKEEPER CLEARS SUSPENSE FILE AND SENDS 2B TO ACCTS RECVB SECT
ACCOUNTS RECEIVABLE SECTION ACCOUNTS FOR EACH SALES ORDER, PREPARES A LEDGER SHEET, SALES STATISTIC SUMMARIES, SUMMARIES OF COMMISSIONS DUE, JOURNAL ENTRIES, AND BILLS
ATTACHED TO LEDGER SHEET
ATTACHED TO LEDGER SHEET
FILED BY DATE PAID
RETURNED TO SALES SUPERVISOR

Flow chart and suggested routine for merchandise sales accounting

*Formerly associated with The Brooklyn Union Gas Company, Brooklyn, N. Y.



The sales order in triplicate. Note variations in each copy

In addition to the suggested forms those companies requiring a contract or mortgage will have a separate contract or mortgage form, in which case there should be cross reference by number between the sales order and the contract or mortgage.

The following sales book forms are presented as one example of how the sales book could be set up. The accompanying flow chart and suggested routine describe how these particular forms can be utilized to accomplish their purpose. These suggested forms could be redesigned and rearranged to fit the individual needs of a particular company; for example, by providing for a tissue copy to remain in the sales book a complete record of the sale could be maintained in the Sales Department. In this event the section identified on the sample form herewith as "Salesman's Copy" could be used for some other purpose. These changes would not alter the basic idea of the proposed method, which is simplicity and elimination of repetitious transcribing of necessary data.

SUGGESTED ROUTINE

Sales Order

This order is prepared in triplicate by the salesman. The original is sent to the Credit Department where the sale is reviewed and approved or disapproved, and from there to the Accounts Receivable Section.

The duplicate consists of two parts, Delivery Order and Installation Order. It is sent to the Credit Department with the original and from there to the storekeeper as authorization to deliver the appliance. The storekeeper detaches the Installation Order, enters the data of delivery in the space provided, and sends it to the Service Department as authorization to install the appliance. The transaction is recorded on the Stock Record: the quantity, unit, and item code are entered on the Delivery Order, which is held in a suspense file until the Installation Order is returned, and then sent to the Stores Accounting Section. When the installation is made, the Installation Order is signed by the installer and the customer on the reverse side, returned to the Storekeeper for clearing the suspense file, and then forwarded to the Accounts Receivable Section. (On Deliver Only Sales, the installation order is sent by the storekeeper to the Accounts Receivable Section—the Service Department is by-passed.)

The triplicate consists of three parts, Salesman's Copy, Cashier's Coupon, and the Customer's Copy. The Customer's Copy is given to the purchaser at the time the order is taken. The Salesman's Copy and the Cashier's Coupon are given to the cashier with the downpayment. The cashier records the payment, receipts each part, retains the coupon and returns the Salesman's Copy to the salesman. The coupons are summarized daily and sent to the Accounts Receivable Section. The salesmen, at stated intervals, summarize their copies of the orders on an envelope form Sales Report, enclose them in the envelope, and give the envelope to the sales supervisor, who reviews the summary, signs the envelope and sends it with its contents to the Accounts Receivable Section.

Accounts Receivable Section

The Ledger Sheet is designed with space to attach the original of the sales order to it as a complete record of the sale. It is only necessary to provide posting columns for the Serial Number and required charges, dates of payments, payments, balance due, and delinquent amount.

The Cashier's Coupon is posted to a blank Ledger Sheet; these entries are proved daily. The Ledger Sheets are then arranged in Sales Order number sequence and held in a suspense file. The originals of the Sales Orders are summarized to determine the total sales for each man. These totals are balanced with the report envelopes and each Sales Order is accounted for. The totals are then entered on a Sales Control Sheet, the envelope signed as checked and approved, and returned to the sales supervisor. The original of the order is used in preparing commission reports, commission checks, journal entries, and other miscellaneous sales statistic reports. It is then attached to its corresponding Ledger Sheet, which is transferred from the suspense file to the active Accounts Receivable Ledger.

High Spots

The original Sales Order becomes a part of the Ledger Sheet and consequently is readily obtainable: It eliminates all typing on Ledger Sheets; it provides a simple and complete control of orders; it reduces the number of forms to be handled.

During its investigation the committee discovered that many companies render a sep-

arate monthly bill, either because of regulatory body requirements, limitation of equipment, or personal preference. Gradually the subject of separate monthly bills vs. coupon books emerged.

A few companies have utilized the coupon book in place of separate monthly bills and are well satisfied with the results. The reasoning of one company in favor of coupon books was so impressive that the committee decided to present the following quotation from their report:

"Consideration of the use of the coupon book should center first and foremost on the effect such a change may have on our collection percentages and outstandings. One school of thought contends that a written notice prior to the maturity date of the payment, though expensive, is a definite reminder that payment is expected on the due date. They further contend that nothing could replace, and still be as effective, as the prior notice. Another group feels that there is a distinct psychological advantage in the use of the coupon book. The customer sees the dwindling number of coupons as payments are made and this knowledge that their numbers are being reduced creates (consciously or subconsciously) a feeling of satisfaction, and a desire to "finish up." They point out that, especially on 60 months' accounts, a customer becomes heartily sick of receiving a bill month after month, seemingly without end. The result, it is claimed, is a rather apathetic attitude toward the obligation as the years go by.

"It is a fact that coupon books are nothing new or novel. Having been in use for years, they are well known to the paying public. When we consider that General Motors Acceptance Corp., National City Bank, Heating & Plumbing Finance Corp., Commercial Credit Corp., Commercial Investment Trust, (i.e. those concerns that make a business of collecting installment accounts) use coupon books, we can be sure they use the best, most economical and efficient system.

"From evidence within and without our industry, plus the use of coupon books by concerns who should know the relative merits of collection systems, it appears that a person who is in the habit of paying his bills promptly, will pay promptly on the coupon system, and, if we may believe its advocates, some slow payers will reform.

"With an average period of time on all accounts of 41 months, we could send out a total of 1,230,000 bills. At an estimated cost of $.038 per bill, said $.038 to include postage, stationery, labor, but no machines, these bills could cost us $46,820.00.

"The cost of 30,000 coupon books, with a page average of 41, would be approximately $40.00 per thousand books, or $.04 each. (The Allison Coupon Co., Indianapolis, Ind.) As only one book is sent on each account, at its inception, our coupon book cost would be approximately $1,200. Assuming an average cost of $.03 for mailing, our postage expense would be $900. Figuring the cost of preparing the book at our present cost per bill, $.038, we have another item of expense of $1,140. These three estimated costs total $3,240 against our present possible expense of $46,820, a saving of $43,580.

"In considering the above figures we must keep in mind that our average time of 41 months is based on each customer paying according to the original terms. In actual practice some will take a longer time than

agreed, while a larger number will pay in advance of the final maturity. Basing our actual average time for all accounts on our percentage of return per month, we find the time of 41 months considerably reduced as follows:

(based on per cent return per mo.)

1937	20 mos.
1938	23.6
1939	24
1940-6 mos.	26.3

"We see, therefore, that we have more people taking advantage of the saving in carrying charges, paying in advance, than those who extend payments beyond the original sales terms. Thus our actual cost and saving may well be as follows:

"Taking an average of the four periods illustrated:

Time	23.5 mos
Bills	705,000
Cost (at $.038 per bill)	$26,790.00
Cost of coupon books (at $.108 each 30,000. As this cost occurs at the inception of the account, subsequent prepayment does not affect it.)	$ 3,240.00
Estimated saving	$23,550.00

"The benefits available to us through the use of the coupon book are as follows:

1. An indicated savings of $1,000 per month on our present installment accounts.
2. A possible future saving in excess of this amount because of increasing actual time of outstandings and number of accounts.
3. The release of two billing machines for use elsewhere, and the elimination of the necessity of replacing them at some time in the future.
4. Removal of the probability of purchasing additional machines as the number of accounts increase.

"We in the collection end of the business thought of possible disadvantages as follows:

1. Possible drop in collection percentages.
2. Increase in notice work to maintain collection percentages (possibility of extra help).

"These possibilities, however, remained just that, as no drop in collection percentages occurred, and no increase in delinquent notices was apparent.

"We are all well pleased with the coupon book, we know that we have effected a considerable saving, a saving that will continue for as long as we have appliance accounts on our books."

The committee is presenting this information with the same intent as the information presented on the sales book plan; as a factual record to stimulate thinking along the line of a possible new approach to an old problem. If any interested person desires the name of the company presenting the above data it can be secured by contacting the committee.

In conclusion, we wish to thank the members of the committee and others who contributed to the information presented in this paper, and express the hope that some worthwhile thoughts and discussions will result from the time spent studying the material presented.

NEW HORIZONS FOR GAS RESEARCH

(Continued from page 536)

success of the program. I want to take this opportunity to express appreciation for their help and cooperation. However, they cannot be expected to carry the full burden of it alone and all members of the Association have an individual responsibility, aside from the support given through funds contributed by their companies. It is your program and you can greatly help to increase the value to the industry of our research work in these ways:

First—by following carefully the results as they are made available in the line of work with which you have responsibility.

Second—By giving the supervising research committees your ideas and suggestions as to the needs of the industry.

Third—By taking such steps as may be necessary to encourage manufacturers in building into their appliances, new developments as they are brought to light by the results of research, because it is only in the application to appliances that the results of appliance research become of value to the industry.

We are confronted with both a challenge and an opportunity. Conversion of the vast store of knowledge gained in scientific and production developments for war, to provide better peace time living is a challenge to our industry. Through the development of new and improved appliances for the home and commercial establishments, new methods for the application of gas in industry and expansion of our present markets, we have an opportunity to bring greater benefits to our customers, larger revenues to our companies and provide increased employment.

The Gas Refrigerator's Service Record

BY THOMAS J. PERRY

Superintendent, Customer Service, The Brooklyn Union Gas Co., Brooklyn, N. Y.

THE future of the gas refrigerator is bright beyond the expectations of our competitors. The latter have bombarded the public with a tremendous volume of wordy postwar plans in which they suggest that we are to become a nation of button pushers.

The public is the final judge in these matters, however, and people will not quickly forget appliance performance, especially refrigerator performance during the war when food preservation was more important because of scarcity. In wartime refrigerators are really put to the test, because replacement equipment is not available and failure may mean exorbitant repair costs or hardship if the individual cannot obtain the necessary replacement parts or meet the repair bill. The gas refrigerator has well met all wartime tests.

It is important to remember that people make daily performance comparisons of appliances and equipment. These discussions take place on the train, in apartment house elevators, over backyard fences—in fact, wherever people gather. The gas refrigerator has gained friends through these discussions, because a person who owns one values it highly and takes pleasure in praising it. Thus, we have a tremendous unseen sales force at work for us.

Early last summer we experienced a hot spell which began June 14 and lasted through July 5. During this 22-day period the maximum daily temperature ranged between 80 and 97° F. in Brooklyn with the mean temperature reaching 90° and 91° on June 30 and July 1. The hottest day was Sunday, July 1, when the mercury reached 97°.

Gas Refrigerators Keep Working

It might be expected that such a long hot spell would result in large numbers of service calls, but actually this was not the case. Although our service force is approximately 35% below normal because of men absent on military duty, it is significant that we were at no time many hours behind our service schedule and at the end of the period we had but one and one-half days' current work on hand, largely the result of the intervening holiday.

People without automatic refrigeration service for many days because of equipment failure during this period were not uncommon, but gas refrigerators, some of them 18 years old, performed in their customary reliable manner, probably because they have no moving parts.

Our records show that when service was requested on air-cooled refrigerators, the burners, thermostats and units were specified, although not always the cause of the call. The major service item on water-cooled refrigerators is the water supply, but cancelled orders—10% in one case and 4% in the other—indicate the need of more customer education in the care and use of the refrigerator.

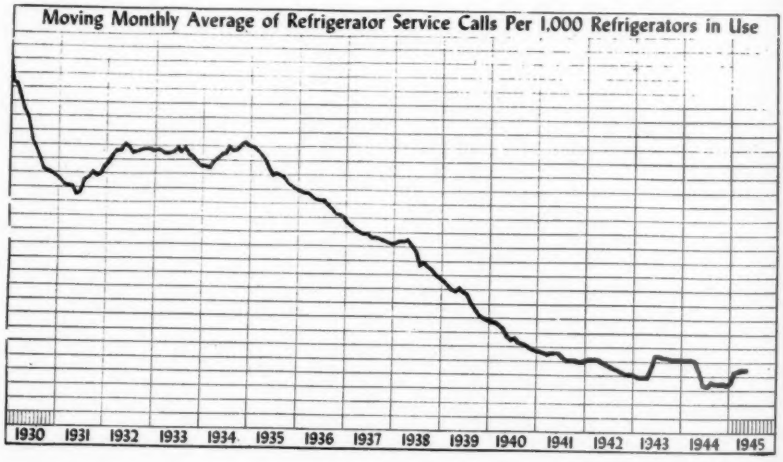
Definition of Cancelled Order

A cancelled order is one in which the serviceman finds no work to be done or in which the customer, after requesting service, later finds his refrigerator is working properly and advises us that service is not required. The people who are good enough to make these second calls have our wholehearted gratitude. We only regret that there are not more of them. Instruction calls and restarts are educational work, and nothing is lost here since they are not apt to recur. Advertising has been helpful in furthering our educational program.

While on the subject of cancelled orders it will be of interest to relate our experience over the Fourth of July. The weather got a little cooler on the 3rd and we decided to telephone a large number of customers who had called for service to find out whether there was any change in the status of their request. On July 3rd and 4th we telephoned 337 customers. 131 didn't answer the telephone, but 206 did. 106 of those who answered told us to cancel orders for service since the boxes were operating satisfactorily and service was not required.

Several people thanked us for calling them. The remaining 100 replied that service was necessary, but the servicemen found no justification for some of these claims. This was an interesting experiment because it again proved that people do not give the refrigerator much chance to pick up the added loads caused by extremely hot weather.

Any piece of equipment requires occasional replacement of parts for one reason or another. The gas refrigerator is more trouble-free in this respect than any other and, therefore, it will be of interest to consider this phase of refrigeration service. A check of the number and type of parts replaced during the summer hot spell shows that the quantities were too small to be of significance. Therefore, it is necessary to consider the replacement parts question over a longer



Reprinted from "The Brooklyn Union Gas News."

period of time and I have selected the first six months of 1945, since this was a wartime period. The ratio of parts failure to number of refrigerators in use during this period is shown in the tabulation below:

Operating parts replaced in the first six months of 1945	*Relation to number of refrigerators in use*
Units	.8%
Burners	1.1
Thermostats	.7

Owners Are Fortunate

When we consider the fact that replacement of gas refrigerator parts is more often the result of abuse rather than use, it appears to us that the manufacturer's record in this respect is an excellent one. Despite the fact that the Servel factory was continuously engaged in war production, little or no delay occurred in replenishing parts stock. Thus, gas refrigerator users were more fortunate than their neighbors in this respect.

Our customers used gas in record volume last winter and abnormally large peak hours and peak days naturally had some effect on service work. Refrigeration service work by months for the first half of 1945 indicates this effect, but the significance of the study lies in the fact that refrigeration service work during the very hot month of June shows but slight increase over the preceding months. Thus, performance of the gas refrigerator during hot weather is again attested to.

The average age of gas refrigerators attached to our lines is about ten years, but the number of service calls occurring on the peak day this year discloses the amazing fact that, despite the age of the refrigerators, the number of service calls per thousand refrigerators in use was less than half the number that occurred on the peak day in 1937 and less than one-third the number which occurred on the peak day in 1936. The performance speaks well for the gas refrigerator and again indicates that many service requests are based on fancy rather than fact.

We are occasionally questioned as to which model requires the most service. Tabulation shows that the greatest amount of service occurred on the older models as you would expect. 43% of the service calls occurred on the early models installed prior to 1934. This might or might not indicate a replacement market in the models sold from 1927 through 1933. It is interesting to note the performance of newer models. Only 39% of the service work during the summer hot spell was on newer models which form 58% of the total. They were performing well.

Now rolling off the line!
NEW SERVEL GAS REFRIGERATORS
Yes, it's on the way! Your new Servel Gas Refrigerator will be here soon—very soon. And you can say good-bye—for good—to refrigerator troubles.
For this modern gas refrigerator is different. It freezes with no moving parts. A tiny gas flame does the work. That's the secret of Servel's famous silence. There's nothing in the freezing system to get noisy—nothing to wear or need repairs.
You'll be amazed when you see the new models! Big and roomy, they've ingenious flexible shelves . . . just-right cold for meat . . . for vegetables . . . for frozen foods.
Wait just a little longer. Your silent, trouble-free Servel will bring you the world's finest refrigeration!
Stays silent... lasts longer
Servel
GAS REFRIGERATOR
GAS COMPANY SIGNATURE

Ad on the new gas refrigerator, now in full production, which has been offered in mat form to gas utility companies

Based on service performance, it seems to me that the gas refrigerator will play a more important part in securing the future of gas in the kitchen than even we have considered possible.

We have come a long way since the first gas refrigerator was installed 18 years ago and I am particularly proud of the fact that much of the progress is the direct result of efforts of our people. We should not minimize customer opinion of our servicemen as compared with other servicemen.

We are now starting the next lap of refrigerator experience at a point far distant from the point at which we started 18 years ago. The accompanying graph, covering experience over the past 15 years, reveals the service trend. It shows two periods of deviation during the war, but these were the result of wartime conditions involving temporary withdrawal of holder from service and record volumes of gas sendouts. Since these conditions are now behind us, the trend downward has been resumed.

To further improve the service record we have the following plan in hand:

1. An improved burner to which filtered gas will be supplied and designed to further reduce stoppages and maladjustments resulting from dust-laden air or tampering.

2. A vertical burner and flue or a design comparable thereto in the matter of performance.

3. Improvement in the cooling fins to prevent them from becoming dust-laden and to provide greater accessibility for cleaning if necessary.

4. Greater educational effort in the use and care of the refrigerator. This can probably be done best by servicemen, but advertising will be of equal importance in this work. Greater emphasis on instruction in the use of the thermostat is required because this device puts refrigeration control in customers' hands. Therefore, customers can and should anticipate their needs and set the control accordingly. Failure to anticipate causes unnecessary service calls.

Additional improvements will be available to customers when new models appear. The service provided by the gas refrigerator is the factor which will cause many more thousands of them soon to be in use.

Instructive

● "Injury," said the workman.
"Inattention," said the foreman.
"Inflammation," said the physician.
"Incurable," said the hospital.
"Incredible," said the mourners.
"Interred," said the undertaker.
"In peace," said the tombstone.

Laclede News

American Stove Offers $18,000 in Prizes For Designs of "Gas Range of Tomorrow"

AN $18,000 prize contest for designs of the "Gas Range of Tomorrow" conducted by the American Stove Company, maker of Magic Chef gas ranges, began November 1 and closes March 1, 1946.

The contest is open to the general public and anyone residing in the continental United States is eligible to participate. It is said to be the first time a manufacturer has offered the ultimate user an opportunity to submit concrete, overall suggestions covering the future design of a home appliance.

Cash prizes are broken down as follows: first prize—$5,000; second prize—$3,000; third prize—$2,000; three prizes of $1,000 each; and 10 prizes of $500 each. The Architectural Forum is acting as sponsor, with George Nelson, of the American Institute of Architects, as professional adviser.

Awards will be judged by a group of leading architects, designers, and home economics experts. Contestants may submit drawings in black and white, or in color. There are no limitations on either the scale or types of drawings submitted, although they must be on 18 x 24 inch sheets.

Few limitations are imposed on the designs. The stove must be one of style and beauty that will fit into the general scheme of the home of tomorrow. In addition to the overall design and appearance, there is also the problem of new features to be incorporated in the range, which make the job of cooking more convenient and enjoyable. Suggested models must be practical for volume production.

Designs may show a radical departure from existing practice, or may involve only slight modifications. If desired, a series of designs may be submitted, ranging from slight modification of current models to a type completely different in construction, appearance and arrangement.

Competition booklets, which incorporate the basic technical data required in initiating a design, may be obtained free of charge by writing to George Nelson, A. I. A., c/o The Architectural Forum, Department P-1, Empire State Building, 350 Fifth Avenue, New York 1, New York, mentioning the Magic Chef design contest.

Food Service Industry Cooperation

BY FRANK H. TREMBLY, JR.

Assistant Sales Manager, The Philadelphia Gas Works Co., Philadelphia, Pa.

THE cooperative relationship between the Food Service Equipment Industry and the American Gas Association is one of long standing and, I am certain, of mutual benefit to both organizations. The beginning of our relationship goes back to about 1934, when Sam Annoff and Tom Gallagher worked out the original basis for cooperation. This was only about 2 years after the founding of the food service equipment industry. Much progress has been made during this eleven year period. There have been, to be sure, ups and downs in our relationship, many plans that fell short of the mark; but nevertheless, the understanding between our two industries is an outstanding example of inter-industry cooperation. No other two industries, to my knowledge, have more in common than have we, and I am a sincere believer in the need and benefit of such cooperation.

Gas Strong in Commercial Cooking

The extensive customer acceptance and use of gas as a commercial cooking fuel is one of the important justifications for a spirit of close cooperation between our industries. Where city gas is available and, as you know, this includes by far the greatest number of food establishments in the country, gas serves in those areas from 80 to 98% of all commercial cooking customers. In addition, in those areas beyond the city gas lines, bottled gas carries a considerable part of the commercial cooking load and is a rapidly growing outlet for heavy duty equipment.

Because of this extensive use, gas is recognized as the dominant fuel for commercial cooking. No other cooking fuel or service can even approach, much less equal gas for operating economy, for convenience, for long equipment life, for low maintenance, for customer satisfaction and for acceptance in hundreds of thousands of commercial cooking installations throughout the country. We have no intention of relinquishing this position or permitting other fuels or services to make any appreciable headway in this market. We regard it as our own and we intend to maintain our position in it.

The gas industry is fully conscious of its responsibility in this field as well as to the needs of the future. Plans are now under way for a material expansion in research and development in commercial gas appliances and for a more extensive promotional program that should result in the modernization of a major portion of the commercial cooking equipment now in use.

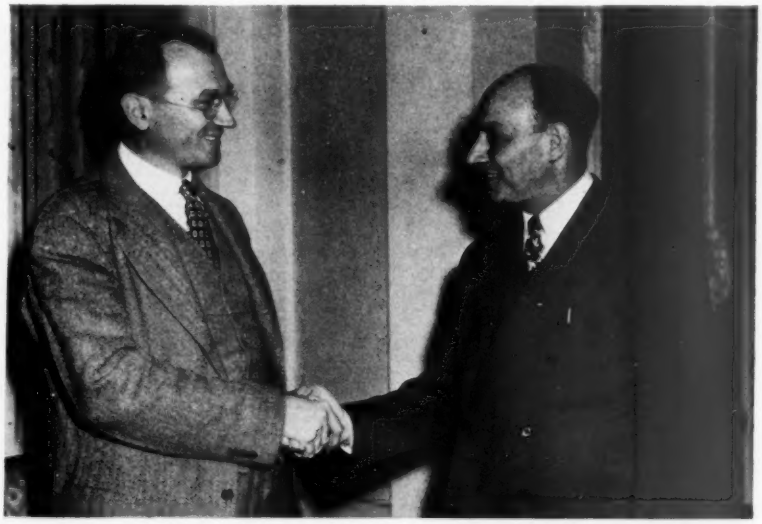
The gas industry has in operation today a broad program of basic research in new gas applications to commercial cooking. This may well result in revolutionary changes in gas equipment, with the development of gas applications never before used. Total premix, blast-type gas equipment may readily be the outcome of this research work. If this work develops as indicated, there will be made available to the food service industry superlative gas equipment, with performance and efficiencies hitherto unobtainable.

Before such basic changes are made, however, existing types of gas equipment will show many changes and improvements as the result of studies and research by both the utilities and the equipment manufacturers. The results of this work should be progressively available in 1946, as new models of commercial gas equipment are brought out.

The gas industry has recognized the need for the national promotion of gas as a commercial cooking fuel. From an advertising standpoint, this is taking the very practical form of a $112,000 appropriation for industrial and commercial advertising for the year beginning October 1, 1945. As a result of this program, full page advertisements are appearing monthly in the best known commercial cooking publications, including the American Restaurant, Restaurant Management, Hotel Management, Modern Hospital, Institutions, Food Industries, Chain Store Age, Baker's Weekly, and Baker's Helper. This represents a substantial enlargement of past advertising programs.

This extensive advertising program, when backed up by the advertising of the gas appliance manufacturers, as well as the local utilities, will properly represent the gas industry before your customers.

Other promotional programs are also under way. A survey has been made by most gas utilities as to the status of the commercial cooking equipment on their lines and the results have indicated that a tremendous replacement market is available. Consideration is being given to a national program on gas



A symbol of cooperation between their industries is this handshake of Frank H. Trembly, Jr., representing the gas industry, and Chairman I. S. Anoff of the Food Service Equipment Industry, at the meeting, Nov. 14 during the hotel show

Presented before the Nov. 14, 1945 meeting of the Food Service Industry, Inc., New York City.

equipment modernization and replacement, as soon as manufacturers' deliveries approach normal. Such a program should consider the food service equipment industry as the principal sales outlet for this equipment.

We have now under preparation, for issue next Spring, a most complete Food Service Manual, designed not only for gas utility representatives, but particularly for sales representatives of kitchen equipment houses. This manual, of substantial size, will be most informative and will in no way conflict with the policies of your organization or compete with you in kitchen design. It is intended to help you, not hurt you.

Part of this promotional program includes the training of food service equipment representatives on gas equipment, to promote a better understanding on the part of these men of the economic and competitive relationship of gas with other fuels. It is our expectation that such training can be made available to kitchen equipment houses throughout the country under the guidance and direction of the gas industry. We invite you to join with us in this program.

Mutual Problems To Solve

Both of our Associations have the same problem—that of keeping our members in line. With respect to the utilities, they fall into three general classes. The first class represents those utilities who operate on the basis of full and honest cooperation with kitchen equipment houses, including: No direct sales competition; financing of kitchen equipment house sales without recourse; sales, engineering and servicing assistance. This group endeavors to practice the Golden Rule and to live up to both the letter and spirit of our agreement. It is, I am glad to say, a growing group, with the greatest support found in the metropolitan centers.

The second group represents those utilities who give lip service to the program of kitchen equipment house cooperation, but who may fall off the wagon at times. They usually are not serious offenders and their fault is more indifference rather than a deliberate action. As the utility management of this group becomes more conscious of the need for cooperation, and its value to the gas industry, they will undoubtedly become part of the first group representing full cooperation.

There is a third group of utilities, fortunately rather small, where there is direct and open competition with kitchen equipment houses and where no cooperation whatsoever is extended. This represents a limited class of "rugged individualists" who are not sympathetic to our program.

The A. G. A. Food Service Committee is exceedingly aware of this group and realizes full well the damage to our mutual relationship that can result from their activities. However, we can only lead and cannot drive our member companies. We can point out to them the advantages of cooperation, but we cannot demand their adherence to our program. Because of this situation, we ask your sympathetic consideration. We are making an earnest endeavor to have those in one

(Continued on page 568)

Scene at the National Hotel Exposition. Left to right: Eleanor Runge, A. G. A.; J. C. Pitman, president, J. C. Pittman & Sons, Inc.; Eugene D. Milener, A. G. A.; and F. Russell Howe, J. C. Pitman & Sons, Sales Corp., Lynn, Mass.

Mase L. Bradway, assistant commercial manager, Springfield Gas Light Co., and Lee Clancy, sales manager, Detroit-Mich. Stove Co.

Harry A. Sutton (right) chairman, A. G. A. Industrial and Commercial Gas Section, and Samuel Sperans, F.S.E.I. treasurer

Crowds Throng Hotel Exposition

MORE than 50,000 visitors from all over the country crowded the aisles during the thirtieth National Hotel Exposition held at the Hotel Commodore in New York City, Nov. 12-15. Most of the visitors had but one objective—to buy replacement or new equipment for their establishments. The tremendous back-log of buying power was evidenced in the volume of orders placed in all fields of the hotel and restaurant business.

Among the 128 exhibitors were many featuring food service equipment, of which gas appliances played a prominent part. Coffee urns, coffee makers, sterilizers, counter type broiler-griddles represented the lighter gas appliances. The 77th Annual Salon of Culinary Art organized by the Societe Culinaire Philanthropique, Inc., an organization of leading chefs, featured heavy duty gas equipment. A committee of the World's Premier Chefs under the chairmanship of Chef Joseph Donon planned and arranged "The Hotel Kitchen of Tomorrow" which attracted widespread attention. A steady stream of interested visitors filed past the modern twelve-foot gas range flanked on either side by heavy duty broilers. Further along was a four-deck cabinet-type bake oven. This equipment was loaned to the chefs' group by the Standard Gas Equipment Corp. Gas-fired deep fat fryers, and large capacity steam pressure cookers were also included in the main display. Cooking utensils, meat grinders, power-driven meat saws and other kitchen accessories completed the presentation which was arranged before a backdrop of large photographs of hotel kitchens.

Sales staffs of exhibitors mingled with purchasing agents, managers and stewards from hotels, clubs, hospitals, school and other institutions. A large number of members of gas utility hotel and restaurant sales divisions attended the Exposition.

During the afternoon of November 14 in connection with the hotel show, the Food Service Equipment Industry, Inc., held its meeting at the Hotel Roosevelt where dealers and manufacturers exchanged views on the postwar reconversion situation. The phases of production, materials and possible delivery schedules of both manufacturers and dealers were covered by several men representing their particular sections of food service equipment business. One of the outstanding talks at this meeting was given by Frank H. Trembly, Jr., The Philadelphia Gas Works Company, representing the American Gas Association. (Mr. Trembly's address appears in full in this issue.)

Industrial and Commercial Gas Conference

HARRY A. SUTTON, chairman of the Industrial and Commercial Gas Section has announced that the 1946 American Gas Association Conference on Industrial and Commercial Gas will be held in Toledo, Ohio, Thursday, and Friday, March 28 and 29 at the Commodore Perry Hotel.

A program of value to all industrial and commercial gas men and appliance and equipment manufacturers is being planned by the Program Committee under the chairmanship of Ralph S. Wenner. The object of this conference, through the subjects to be discussed and the personal contacts which will be made, is to aid the industrial and commercial branches of the gas industry in the continuance of their efforts to have the service rendered by the gas industry used most extensively and efficiently during the reconversion and postwar periods.

Gas-Fired Roll Warmer Available

THERE can always be some little extra touch that really "makes" a meal. It may be attractive surroundings, a specialty dish, a distinctive sauce or something else individual that identifies a particular eating place. There is one item, however, that all restaurants can feature and that is *hot rolls*. A small item on the menu, but one that does something for a meal and is more than appreciated by the patron.

Now available as an early postwar kitchen accessory is the Atlas gas fired roll warmer made by the National Cornice Works, Los Angeles 21, California. This gas fired roll warmer is an attractive piece of equipment in stainless steel with copper lined drawers and is especially designed to keep hard rolls hard and soft rolls soft by means of a damper located in the top of the well in which the drawers slide. Heated by a special gas burner which burns up through a nichrom wire screen to facilitate complete combustion, the roll warmer will pay dividends in increased patron satisfaction. It is made in two and three drawer models for either counter or floor installation.

Restaurant Opportunities

RETURNING veterans who have the experience, training and ability have an excellent chance of success in the restaurant field according to Samuel R. Sperans, President, Nathan Straus-Duparquet, Inc., New York, prominent suppliers of hotel and restaurant equipment.

During the war there was a growing trend toward restaurant eating because of the difficulty of obtaining family food supplies, which in the case of smaller families was due to inadequate ration points. This trend will diminish, but there will be many who will continue the restaurant habit to make for an expanded volume of restaurant business, and increased opportunities for newcomers in the field, Mr. Sperans said, and hundreds of veterans have indicated that they plan to enter into the restaurant business.

Gas companies can aid the veteran in planning a new restaurant or in modernizing an establishment by cooperating with gas equipment manufacturers in the selection of proper equipment to do specific jobs.

Gas Center Planned for Metal Exposition

THE first postwar National Metal Exposition and Congress will be held in the Public Auditorium, Cleveland, Ohio, February 4 to 8, 1946. This is the metal show that was postponed from last Fall on account of wartime government travel restrictions.

The American Gas Association and The East Ohio Gas Company are jointly sponsoring "The Industrial Gas Center" which will be located on one of the main aisles of the exposition floor, and many manufacturers of industrial gas equipment will be showing their postwar products at adjacent and surrounding exhibits.

The Exposition and Congress has always been attended by a large number of industrial gas men and manufacturers' representatives who find this show an excellent opportunity to make close contacts with customers. They also have the chance to study the latest in industrial heat applications. New ideas and new developments in industrial gas utilization will be expounded during the week.

Following an established precedent, plans are being made for The Industrial Gas Breakfast which in previous years has been one of the most popular and best attended features of the Metal Congress.

Reprint Available

RADIANT Gas Burners in the Modern Oven" is the title of an article by Carl P. Mann, manager, Drying Division, Selas Corporation of America, Philadelphia 34, Pa. This article appeared in *Products Finishing* and has been reprinted for distribution by Selas. It is recommended to those interested in radiant heating as covering the subject of this type of gas heating thoroughly.

Bridgeport Has Industrial Gas Exhibit

Highly successful industrial gas exhibit sponsored by the Bridgeport Gas Light Company

ONE of the first postwar exhibits for the promotion of industrial gas utilization was held by the Bridgeport Gas Light Company recently. Its success was evidenced by a company statement that 1000 MCF per month was added to their lines as a result of equipment sales made at the exhibit.

The Bridgeport Company cleared a space in its Service Building and W. Wirt Young and Associates of Waterbury set up an operating exhibit in cooperation with ten gas equipment manufacturers that could demonstrate many heat applications. Some of the equipment on display is briefly described as follows:

Surface Combustion "Char-Mo": Atmosphere furnace for medium hardening up to 1850° F. This unit equipped with a new Brown "Electronik" proportioning temperature control.

Gehnrich "Forced Convection": Oven with a temperature range up to 1200° F. equipped with Bristol air-operated proportioning temperature control.

Kane Steam Generator: A completely automatic high pressure steam generator.

Hones "Buzzer" Furnace: Four of these units were installed for heat treating smaller tools.

In addition equipment was supplied by Mears Kane Ofeldt, Inc.; Brown Instrument Company; Bristol Company; B. C. Ames Company; The Partlow Corporation; Spencer Turbine Company and Automatic Temperature Control Company, Inc.

Among the processes demonstrated were: Hardening—direct heat, atmospheres, salt; Tempering—air or salt; Annealing—full and relief; Case Hardening; Aluminum Heat Treating; Baking Finishes; Core Baking; Steam Generation; Tank Heating and High Speed Heating.

Letters were sent to industrial prospects and later followed up by telephone calls. Several hundred attended the exhibit.

gas grapevine

in spite of a howl from the a.g.a. monthly editor about paper shortage and stuff, he very cheerfully gave us a little space to start this column. we're going to make it so interesting though, that he will be glad to let us spread out and keep it a regular monthly feature.

marines on iwo jima had a hot meal for the first time in days by shoving their canned rations into fissures on the slopes of the suribachi volcano. not as good as cooking with gas, but in a war one can't be too choosey.

shades of the gay nineties! two ancient gas street lamps 'way down in greenwich village, new york city, which had been turned off during the war blackout period, have been relighted in perpetuity by consolidated edison. one lamp at each end of macdougal alley will cast flickering shadows through the night—a reminder of new york's gas light era.

heard at the a.g.a. annual meeting in october —carl lekberg, northern indiana public service co., says there are only two kinds of industrial gas sales, those you have just sold, and those that are not yet settled.

maybe you won't need a boiled shirt, but don't forget the tooth brush and razor when you pack your bag to attend the national metal exposition in cleveland, february 4-8. why not invite some of your good customers or prospects to come along with you and see the latest in industrial heating applications?

"dixie" walker, the hard clouting right fielder of the brooklyn dodgers, lined out a long fly one sunday afternoon last summer, using a magnesium bat. he liked the bat so well that he took it on his winter tour because he broke three dozen wooden bats during the season.
p.s.—it was made by white metal rolling and stamping corp., of brooklyn and gas fuel was used for all heating applications in producing the mag alloy bat.

editors of trade magazines have stated that they want pictures of good industrial or commercial gas installations. pictures help tell a better story, but don't forget to send the story with photos to a.g.a. and we will get lots more publicity for the industry.

we apologize for the broken shift key on our vintage typewriter. do you think we ought to write a letter to santa claus to have it fixed, or should we just leave it alone?

aqs

AMERICAN GAS ASSOCIATION
INDUSTRIAL AND COMMERCIAL GAS

ADVERTISING FOR DECEMBER

GENERAL MANUFACTURING

A Man Well Worth Knowing—Your Local *GAS* Company's Industrial Engineer. **Business Week (Dec. 15)**
Modern Industry

Pioneer in heat treating for thirty years uses 47 *GAS* Furnaces for wide variety of metals conditioning. **Industrial Heating**

Industrial *GAS* Air Conditioning is Benefiting These and Other Industries. **Factory Management & Maintenance**

METALS INDUSTRY

With *GAS* Ovens "uniformity of cores" and "production of good castings" Are Insured, says Bronze and Aluminum Foundry. **Foundry**

Pioneer in heat treating for thirty years uses 47 *GAS* Furnaces for wide variety of metals conditioning. **Materials and Methods**

A Man Well Worth Knowing—Your Local *GAS* Company's Industrial Engineer. **The Iron Age (Dec. 6)**

GAS, our most versatile fuel, helped saw our way to Victory. **Metal Progress**

Broaches—Master tools of Mass Production—Precision Heat Treated with *GAS* at Detroit's Commercial Steel Treating Corporation. **Steel (Dec. 10)**

TECHNICAL COLLEGE PUBLICATIONS

1,415,853,000,000 Cubic Feet of *GAS* used Industrially and Commercially in year Prove the Trend is Definitely to *GAS*.
21 Engineering College Magazines

CERAMIC INDUSTRY

Producer of Truing Wheels Finds speed and uniformity of *GAS* equipment Valued Assets. **Ceramic Industry**

GLASS INDUSTRY

A Man Well Worth Knowing—Your Local *GAS* Company's Industrial Engineer. **Glass Industry**

CHEMICAL FIELD

1,415,853,000,000 Cubic Feet of *GAS* used Industrially and Commercially in year Prove the Trend is Definitely to *GAS*.
Chemical & Metallurgical Engineering

A Man Well Worth Knowing—Your Local *GAS* Company's Industrial Engineer. **Chemical and Engineering News (Dec. 10)**

TEXTILE FIELD

A Man Well Worth Knowing—Your Local *GAS* Company's Industrial Engineer. **Textile World**

HOTEL AND RESTAURANT FIELD

Here's Why the Trend is to *GAS* for all Commercial Cooking.
American Restaurant

Many Advantages of *GAS* Cooking Stressed at Cleveland's Hotel Statler.
Hotel Management

Schrafft's busy Times Square Restaurant cooks 5000 meals daily with *GAS*. **Restaurant Management**

A Man Well Worth Knowing—Your Local *GAS* Company's Commercial Representative. **Institutions (4/9 page)**

SCHOOL FIELD

A Man Well Worth Knowing—Your Local *GAS* Company's Commercial Representative. **Nation's Schools**

HOSPITAL FIELD

One of the Many Advantages of *GAS* and Modern *GAS* Equipment—Economy. **Modern Hospital**

FOOD PROCESSING

A Man Well Worth Knowing—Your Local *GAS* Company's Industrial Engineer. **Food Industries**

BAKING FIELD

1,415,853,000,000 Cubic Feet of *GAS* used Industrially and Commercially in year Prove the Trend is Definitely to *GAS*. **Bakers' Helper (Dec. 1)**
Bakers Weekly (Dec. 10)

FOUNTAIN AND RESTAURANT FIELD

A Man Well Worth Knowing—Your Local *GAS* Company's Commercial Representative. **Chain Store Age (Fountain-Restaurant Section)**

NEWSPAPERS, PUBLISHERS, ETC.

One of the Many Advantages of *GAS* and Modern *GAS* Equipment—Economy. **Editor and Publisher (Nov. 17)**

The O'Keeffe Carbon Burning Lining

BY W. E. LEBO

Public Service Electric and Gas Co., Harrison, N. J.

Member, A. G. A. Gas Production Committee

THE advances in the art of oil refining, particularly in the increased use of light gas oils, have forced the manufactured gas companies to utilize the cheaper residuum oils. There are also indications that recent developments in the oil industry will reduce the availability of the better grades of heavy oils for gas-making purposes in the coming years.

The heavy oil process was developed to meet this ever changing picture of oil economics and many believe that it has been and still is the greatest boon to the gas industry in its history. However, it brought with it a few operating problems, such as heavy tar, gummy lamp blacks and carbonaceous deposits which necessitate either larger pipe lines, special treatment, or frequent scheduled cleanings.

Carbon Deposition

The most troublesome problem in point of time and labor for removal was the deposition of carbon on the floor and side wall of the carburetter. This deposit may in some cases be soft and pliable, in others hard, dense and adherent to the brick work. The quantity of the deposit may vary from a wheelbarrow load to several tons depending upon the conradson carbon content of the oil and various other factors. Some contend that this type of carbon deposition can be prevented by maintaining a definite relation between the rates of oil and steam admission. This, however, is not at present considered feasible from the standpoint of practical operation.

Some plants have been known to require 5 to 8 hours after each 30 to 40 hours operation to remove the carbon deposits in the carburetter. To relieve this condition, the late J. G. O'Keeffe, then general superintendent of manufacture of the Public Service Electric and Gas Company, Newark, New Jersey, took out Patent No. 2247336 in 1938 for the "O'Keeffe Carbon Burning Lining."

In this patent, the construction of the lining is similar to that indicated in Figure I. Basically, it consists of an annular space between an outer and inner refractory lining. The outer lining is perforated with small holes or orifices of such size and number as to distribute air evenly over the entire area. The inner lining is to protect the steel shell. The annular space is divided by horizontal and vertical walls. In an 11 ft. machine, this space is divided into eleven compartments to facilitate air adjustment. The floor and crown of the carburetter and gas connections are constructed in a similar manner.

The regular blast system supplies air to the lining by means of a manifold piped to each compartment and is controlled by suitable dampers or sliding valves. There is provided a main shut off valve and proper metering arrangement. The shut off valve is usually operated in conjunction with the carburetter blast valve. During the oil run means are provided to purge the air piping and O'Keeffe lining with steam. The air piping and floor compartments are also pro-

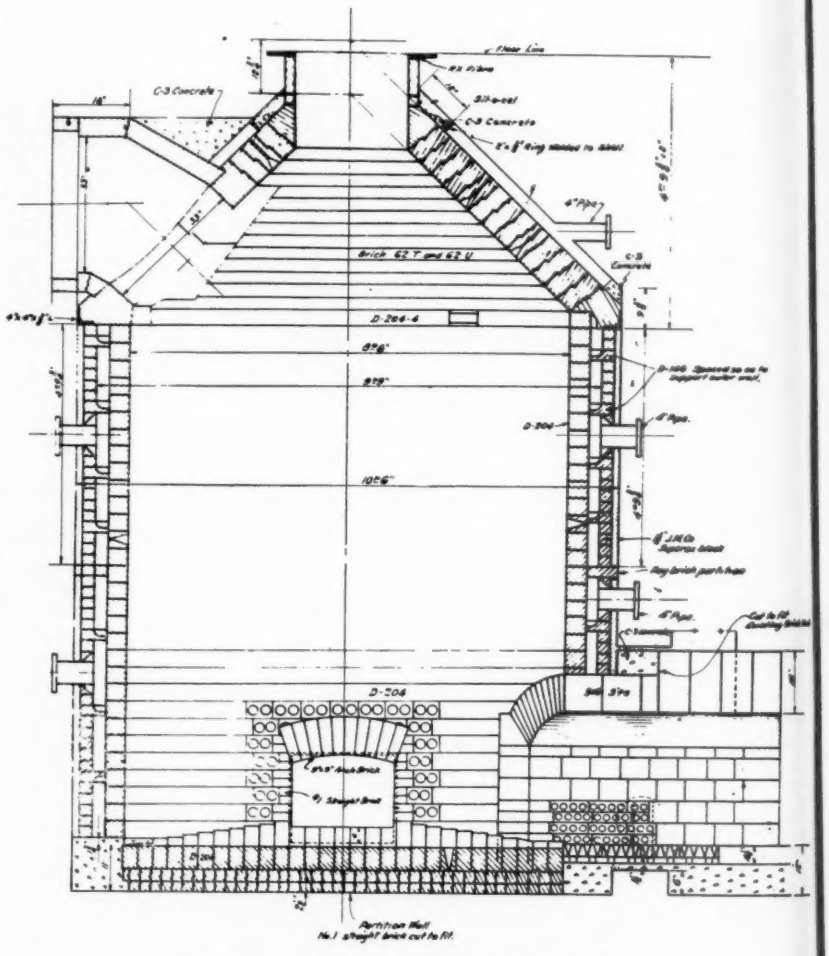
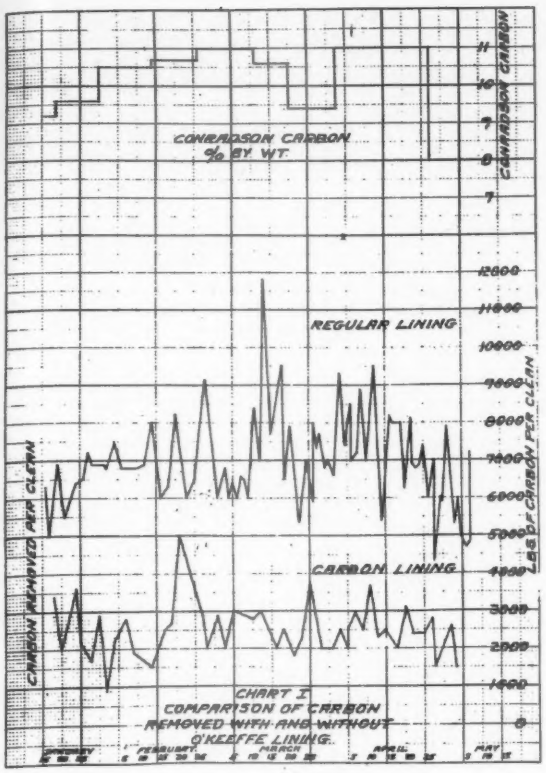
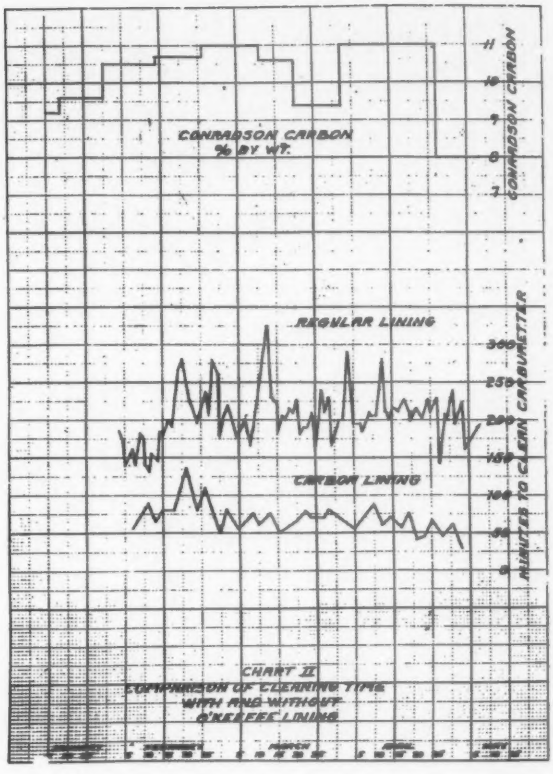


Figure 1. Section of O'Keeffe carbon burning lining





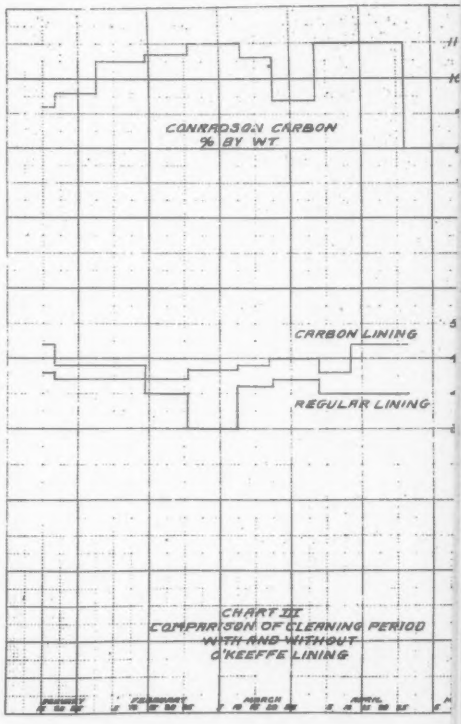
vided with ample condensate drains and clean out doors.

In operation, the air is admitted into the annular space during the blasting period, flows through the small ports and comes in contact with the hot carbon deposited on the face of the brick work. During the gas-making period a small quantity of steam is admitted to the air manifold to prevent explosive mixtures forming in the annular space. Upon starting up a new machine or after long periods of shutdown when the brick lining is cold, special attention is required to elevate the carburetter temperature for a few hours above that normally maintained, increasing the oil rate gradually in order that the brick work will not be cooled too much.

The carbon burning process was developed primarily for the Harrison Plant of the Public Service Electric and Gas Company where heavy oil was used with the conradson carbon content varying between 6½ to 12%. Prior to this, the carburetter cleaning operation had at times consumed as high as 7 hours per machine after a 35-hour operation period. The set capacity was of course, correspondingly reduced and the clinker men were complaining of the arduous nature of the work. After a satisfactory test of the new process in the Paterson plant, it was installed in the Harrison plant where there was an opportunity to obtain comparative data on adjacent carburetted water gas machines with and without the O'Keeffe Linings. These data are plotted on Charts I, II and III, indicating that with the same oil, the O'Keeffe Process has reduced the average carbon deposition and cleaning time to about 35% of that required before its installation. It has also greatly reduced the cleaning labor problem.

In 1944, this process was installed on a U. G. I. 10′ x 9′ mechanical generator set in a 13-ft. carburetter where oil is admitted at the rate of 100 gallons per minute. In this machine carbon burning air is admitted at the rate of 7,000 c. f. m. and the carburetter is cleaned once every five days after approximately 45,000 m. c. f. of gas has been made. The total carburetter cleaning time in this case was about one and one-half hours, averaging about 1.25 to 1.8% of the operating hours.

After the development work of the O'Keeffe Process was completed at the Paterson and Harrison Plants, Public Service Electric and Gas Company installed the process in all its plants using heavy oils containing low ash residues. It has made a definite contribution to the war effort in that fewer men have been required for the clinker gangs, the set capacity has been increased because of shorter cleans and it has been possible to use a greater variety of oils.



Worry

● Definition of worry: a circle of inefficient thoughts whirling about a pivot of fear. —*Northwestern National News*

Technical Section Organizes for 1946

MEETINGS of Technical Section Committees, to discuss and plan their work for the Association year 1945-1946, were held at the Claridge Hotel, Atlantic City, N. J., on November 12 and 13. These meetings were well attended, with one hundred members present for the two-day sessions.

On November 12, the Chemical Committee, Distribution Committee, Gas Production Committee, Motor Vehicle Committee and Organic Sulphur Subcommittee, met to lay their 1946 plans for committee work. These meetings were followed by the dinner meeting of the Managing and Advisory Committees at 6:30 P.M., at which the committee chairmen projected their programs for the new Association year.

On November 13, the Postwar Planning Cooperating Committee, Research Subcommittee (to consider the Four Basic Studies undertaken at the Institute of Gas Technology) the Gas Conditioning Committee, Motor Vehicle Subcommittee, Gas Chemists' Handbook Revision Committee, "Fuel-Flue Gases" Book Revision Subcommittee and the Subcommittee on Pipe Coatings, held their meetings to fully consider their subjects and assignments.

The chairmen and committee memberships of the groups above have been retained for the 1945-1946 year, in view of the emergency conditions existing during the past Association year. The chairmen of these committees are listed below:

Chemical Committee—Dr. C. W. Wilson, Chairman, Consolidated Gas Electric Light & Power Co. of Baltimore, Baltimore, Md.

Distribution Committee—T. H. Kendall, Chairman, Equitable Gas Co., Pittsburgh, Pa.

Gas Production Committee—R. Van Vliet, Chairman, New York & Richmond Gas Co., Stapleton, S. I., N. Y.

Motor Vehicle Committee—S. G. Page, Chairman, Equitable Gas Co., Pittsburgh, Pa.

Organic Sulphur Subcommittee—Dr. E. W. Guernsey, Chairman, Consolidated Gas Electric Light & Power Co. of Baltimore, Baltimore, Md.

Postwar Planning Cooperating Committee—J. V. Postles, Chairman, The Philadelphia Gas Works Co., Philadelphia, Pa.

Research Subcommittee (on Four Basic Studies)—T. L. Robey, Chairman, Washington Gas Light Co., Washington, D. C.

Gas Conditioning Committee—H. D. Lehman, Chairman, The Philadelphia Gas Works Co., Philadelphia, Pa.

Gas Chemists' Handbook Revision Subcommittee—E. L. Sweeney, Chairman, Boston Consolidated Gas Co., Everett, Mass.

"Fuel-Flue Gases" Book Revision Committee—Louis Shnidman, Chairman, Rochester Gas & Electric Corp., Rochester, N. Y.

Subcommittee on Pipe Coatings & Corrosion—R. F. Hadley, Chairman, Susquehanna Pipe Line Co., Philadelphia, Pa.

Program Committee meetings are planned for January when detailed arrangements for the Technical Conference programs will be consummated.

The highlight of the organization meetings in Atlantic City was a general luncheon for all in attendance, at which Commander E. S. Pettyjohn of the U. S. Navy, Dr. H. H. Lowry of Carnegie Institute of Technology, Dr. A. R. Powell of Koppers Co., and L. L. Newman of U. S. Bureau of Mines, Washington, D. C., summarized their European experiences while abroad on special assignments during wartime.

Dates Set for Spring Meetings

LESTER J. ECK, vice-president, Minneapolis Gas Light Company, chairman of the Technical Section of the American Gas Association, announced at the organization meetings of the Section, recently held at the Claridge Hotel in Atlantic City, that arrangements were made by the Gas Production, Chemical, Distribution and Motor Vehicle Committees, to hold their Annual Conferences as follows:

Distribution and Motor Vehicle Conference, at the Hotel Stevens, Chicago, Ill., on April 16, 17 and 18, 1946.

Joint Production and Chemical Committee Conference at the Hotel Pennsylvania, New York City, June 3, 4 and 5, 1946.

Programs are well under way and the customary and ever-popular round-table luncheon conferences will play an important part.

Pacific Gas Expansion

THE Pacific Gas and Electric Co. is expending $1,900,000 to extend and improve its natural gas facilities throughout Northern and Central California. On the program are $1,000,000 worth of additions and betterments for transmission pipelines and $900,000 worth of new distribution mains in numerous communities. The purpose of all the work is to take care of gas load increases definitely indicated by comprehensive surveys.

One of the major projects is the reconditioning of transmission pipeline number 105—a 40-mile stretch of 20-inch steel main extending into Oakland from the metering and pressure-control station at Milpitas. This is part of the first natural gas line built by the company in 1929-'30 from the Kettleman Hills and Buttonwillow fields to the San Francisco Bay area.

The same sort of reconditioning job, to increase San Francisco's gas supply, is being done on pipeline 101—a 45-mile stretch extending from Milpitas to San Francisco and also a unit of the first natural gas line built by the company in 1929-30.

View of Technical Section dinner meeting in Atlantic City, November 12. Left to right: L. L. Newman, Bureau of Mines, Washington, D. C.; Commander E. S. Pettyjohn, United States Navy; L. J. Eck, Minneapolis Gas Light Company, Minneapolis, chairman, Technical Section; Dr. H. H. Lowry, Carnegie Institute of Technology; Dr. A. R. Powell, Koppers Co., Pittsburgh; A. Gordon King, Secretary, Technical Section, A. G. A.

The Motor Vehicle Committee in session. Among those shown are: S. G. Page, chairman, Motor Vehicle Committee, Pittsburgh, Pennsylvania, seated at extreme right; B. D. Connor, vice-chairman, Motor Vehicle Committee, Boston, seated at extreme left

T. L. Robey, chairman, Research Subcommittee, Postwar Planning Cooperating Committee; J. V. Postles, chairman, Postwar Planning Cooperating Committee; H. B. Andersen, chairman, Subcommittee on Economics of Distribution Design

E. M. Bliss, Public Service Electric and Gas Co., Harrison, New Jersey; E. L. Sweeney, Boston Consolidated Gas Co., Everett, Massachusetts, chairman, Gas Chemists Handbook Revision Committee; Lieutenant A. O. Sands, Camp Detrick, Frederick, Maryland

Dr. E. W. Guernsey, Baltimore, Maryland, chairman, Organic Sulfur Subcommittee; H. D. Lehman, Philadelphia, Pennsylvania, chairman, Gas Conditioning Committee; J. F. Anthes, The Brooklyn Union Gas Company, Brooklyn, New York

T. H. Kendall, Pittsburgh, Pennsylvania, chairman, Distribution Committee; Gladys Hanshaw, Assistant Secretary, Technical Section, American Gas Association; A. W. Johnston, Jr., Washington, D. C.; George Binder, Cleveland, Ohio

Prof. Wilbert J. Huff, Bureau of Mines, College Park, Md.; L. M. Van der Pyl, Pittsburgh Equitable Meter Co., Pittsburgh

R. Van Vliet, Staten Island, chairman, Gas Production Com.; Samuel Green, Brooklyn, vice-chairman, Gas Production Com.

J. G. Sweeney, Brooklyn, N. Y., chairman, "Wrinkles Subcommittee" (left); Dr. A. W. Gauger, Pennsylvania State College

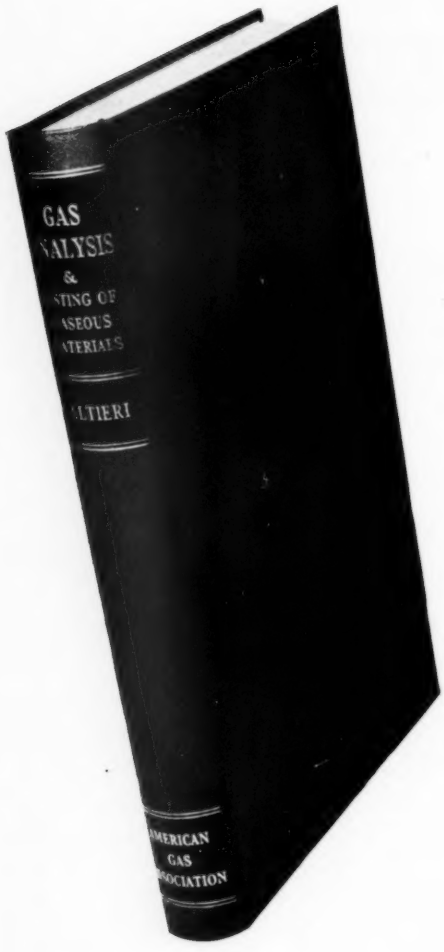
C. C. Jones, Philadelphia, chairman, Subcommittee on Cast Iron Pipe Standards; T. S. Bacon, Lone Star Gas Co., Dallas

A. C. Sedlachek, Philadelphia Coke Co., F. J. Pfluke, Rochester, chairman, Technical Advisory Com., Mfrd. Gas Dept.

Dr. C. W. Wilson, Baltimore, chairman, Chemical Committee; W. R. Fraser, Detroit, vice-chairman, Chemical Committee

GAS ANALYSIS & TESTING OF GASEOUS MATERIALS

for solving problems confronting gas chemists, engineers, technicians . . .



By V. J. ALTIERI, B.S.

Author of "Light Oils and Light Oil Products"
Chief Chemist, Eastern Gas and Fuel Associates, Boston, Mass.

A COMPREHENSIVE BOOK OF STANDARDS for sampling, analyzing and testing gases and gas mixtures containing varying amounts of liquids and solid dispersoids is now available. It gives clear, understandable details about materials and processes in the gas phase, particularly as applied in the great variety of situations arising in and related to the Gas Industry.

A SUMMARY OF TECHNICAL LITERATURE is included, together with hitherto unpublished details obtained from contemporary workers in many scientific and technologic fields. The material is so correlated and indexed as to give a bird's eye view of each subject, instantly enabling you to find essential principles, specifications, methods, tests, interpretations and related matters.

A WEALTH OF PRACTICAL INFORMATION will be found on its pages. Chapters I to VI cover various kinds of materials, processes, local factors, and purposes of work; properties and composition of gases; measurement of quantity and flow; selection of methods of sampling, instrumentation and process control; apparatus and reagents; common operations; general calculations. Specific methods, tests and facilities, covered in Chapters VII to XX, show usefulness of analysis and testing of materials and processes in the gas phase.

- 560 pages, 6 inches x 9 inches
- Handsome green cloth binding
- Profusely illustrated
- Thoroughly indexed
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Internal Corrosion on High Pressure Condensate Wells Baffles Engineers

THE comparatively new research program devoted to the study of internal corrosion affecting high pressure condensate well production equipment, a problem which has baffled production and research engineers in Lone Star Gas and other large producing companies, recently was given new impetus with announcement of three new University of Texas research projects assigned to this study.

Thomas S. Bacon, Lone Star Gas Company research engineer, is chairman of the special Corrosion Research Project committee of the Natural Gasoline Association of America. This committee is correlating various committees working on the project, including the A.P.I. committee on field surveys, and N.A.C.E. committee on "alloy" field tests, Bureau of Mines research on the subject, and Battelle Memorial Institute.

The three university projects will include routine analyses, organic acid identification, and physical chemical study.

Believed To Be Acid

The strange corrosive element, believed to be an acid which is harmless except under pressures such as are found in condensate wells, is unique in its attack upon well equipment. Its effects are highly localized, weakening one section of a pipe without affecting another, attacking one well in a field while not affecting an adjacent well in the same area.

In Lone Star properties, the corrosion is found in Opelika field where it has done a great deal of damage, and in some wells in Grapeland and Willow Springs fields. The corrosion attacks tubing strings, Christmas tree fittings, flow valves and flow lines, seriously endangering both the equipment and the property because of its internal nature. Outwardly the equipment seldom shows indication of corrosion when actually threads of tubing and often the tubing itself will be pitted and corroded to the danger point. Its presence must be determined by either chemical analysis of produced water samples for iron content or by equipment failure itself or by careful inspection of internal surfaces of the equipment.

In Lone Star fields some equipment has been replaced in a well after only three months of service, while equipment in a nearby well is entirely free from the corrosion after several years of use. The wells may be producing under almost identical conditions, yet one well was badly corroded and the other remained unaffected.

The corrosion is said to occur in the absence of any known corrosive agents with the possible exception of carbon dioxide. In the above mentioned wells tests showed the damaged well to have 1.6 per cent of carbon dioxide while the undamaged well showed 1.5 per cent.

Lone Star Producing Company has been injecting chemicals into its wells in the Opelika field for the past several years in an attempt to cure the corrosion. First a solution of soda ash was used, injected into the casing and allowed to trickle down into the producing formation and thence into the gas stream. The treatment reduced the rate of corrosion materially, according to Mr. Bacon, but built up a calcium carbonate that eventually collected on the tubing perforation or in the tubing to form a bottom hole choke. This was removed by a treatment of four barrels of acid per well, but the acidation was required again in about 30 days as the calcium carbonate again built up.—*The Blue Blaze*

Gas Analysis Book Just Published

THE Technical Section of the American Gas Association has sponsored and published an authoritative book entitled "Gas Analysis and Testing of Gaseous Materials," by V. J. Altieri, B.S., chief chemist, Eastern Gas and Fuel Associates, Boston, it has been announced by Lester J. Eck, chairman of the Section.

Mr. Altieri, also author of "Light Oils and Light Oil Products," was formerly chairman of the A.G.A. Chemical Committee. He was assigned by the A.G.A. Committee on Revision of the Gas Chemists' Handbook, of which E. L. Sweeney, Boston Consolidated Gas Company is chairman, to revise the gas analysis chapter of the handbook, long since out of print but still in big demand, and to cover important subjects listed by the Revision Committee. New subjects constitute about three-fourths of the text, so the result has been a comprehensive book for gases and gases containing varying amounts of liquids and solids. The Chemical Committee through its chairman, Dr. Channing W. Wilson, Consolidated Gas Electric Light & Power Company, of Baltimore, has endorsed the new publication.

The new book containing 560 pages of practical information for the chemists, engineers and technicians of the industry, is now on sale at the headquarters of the American Gas Association, 420 Lexington Ave., New York 17, N. Y. It is priced at $5.00 to members and $7.50 a copy to non-members.

The table of contents discloses chapters on kinds of materials, processes, properties and compositions of gases, measurement of quantity and flow, selection of method of sampling, operations and calculations of gas analyses. Other chapters are devoted to specific methods, tests and facilities showing usefulness of gas analyses and testing of materials and processes in the gas phase. Pages are 6 inches by 9 inches, profusely illustrated and the volume is thoroughly indexed.

Statement of the Ownership, Management, Circulation, Etc., Required By the Acts of Congress of August 24, 1912, and March 3, 1933

Of American Gas Association Monthly published monthly, except July-Aug. which is combined, at Brattleboro, Vermont for Sept. 25, 1945.

State of New York, County of New York, ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared James M. Beall, who, having been duly sworn according to law, deposes and says that he is the Editor of the American Gas Association Monthly and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, American Gas Association, Inc., 420 Lexington Ave., New York 17, N. Y.; Editor, James M. Beall, 420 Lexington Ave., New York, N. Y.; Managing Editor, None; Business Managers, None.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

American Gas Association, Inc., 420 Lexington Avenue, New York 17, N. Y.; President, J French Robinson; Vice-President, E. J. Boothby; Treasurer, Edward F. Barrett; Managing Director, Alexander Forward (all of 420 Lexington Ave., New York 17, N. Y.)

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is . (This information is required from daily publications only.)

JAMES M. BEALL, Editor.

Sworn to and subscribed before me this 26th day of September, 1945.

(Seal)

LAWRENCE P. BROWN,
Notary Public, Queens Co. No. 278, Reg. No. 110-B-7
Cert. filed in N. Y. Co. No. 1023, Reg. No. 89-B-7
Commission expires March 30, 1947

Personal and Otherwise

Vice-President of Kentucky, W. Va. Co.

Donald B. Beecher

DONALD B. BEECHER has been elected a director, and vice-president of Kentucky West Virginia Gas Company, and general manager, and appointed chairman of the operating committee. He fills the vacancies caused by the retirement of P. C. Van Gilst, former director, vice-president in charge of operation and member of the operating committee, after 28 years' service with the Standard Gas and Electric System.

F. P. C. Personnel

RICHARD SACHSE of California, successor to John W. Scott, was sworn in as a member of the Federal Power Commission November 1 for a term expiring June 22, 1947.

The Commission has announced the resignation of Harry S. Littman as assistant general counsel on natural gas matters. Mr. Littman will return to private practice of law.

Named Ass't Treasurer

William A. Rhaesa

HENRY FINK, vice-president, the Michigan Consolidated Gas Company, recently announced that William A. Rhaesa has been appointed to the office of assistant treasurer of the company.

Mr. Rhaesa was first employed in 1927 in the Noble Street division of the accounting department. In 1929 he was transferred to the Main Office as an accounting clerk. In 1937 he was promoted to supervisor of the statistics division, in 1941 to assistant chief accountant, and in 1944 to chief accountant.

O. H. Smith Joins Brooklyn Borough

OLIVER H. SMITH, manager, Gas Production Department, of Consolidated Edison Co. of New York, left the company in October to become vice-president, general superintendent and engineer of construction, manufacture and distribution of the Brooklyn Borough Gas Company, which serves Coney Island.

Fred B. Cadmus, who has been superintendent of the East River generating station, succeeded Mr. Smith as manager of the Gas Production Department.

Mr. Smith joined the Edison System companies as superintendent's assistant at the Ravenswood Gas Works in 1912. In 1914 he was made assistant superintendent and in 1923 he was transferred to Consolidated Gas, becoming assistant engineer of gas manufacture two years later. In 1942 he was made assistant manager of the Gas Production Department and in May, 1943, he became manager.

Mr. Smith has served as secretary of the Society of Gas Lighting since 1937. He was born in Pottstown, Pa., in 1890 and attended Hill School and Lehigh University.

B. H. Gardner To Retire Feb. 1

B. H. Gardner

B. H. GARDNER, of Columbus, Ohio, vice-president of the Columbia Engineering Corporation, has announced his intention of retiring from active business on February 1, 1946.

A graduate of Clemson College, Mr. Gardner spent the first two years after graduation with the General Electric Company in Schenectady, New York. On February 1, 1906, he entered the employ of the Dayton Power and Light Company, of Dayton, Ohio, as a power sales engineer, and since that date has been continuously in the utility business.

In 1912 Mr. Gardner became sales manager of the Connecticut Light and Power Company, of Waterbury, Connecticut. In 1921 he was appointed manager of the Northern Indiana Public Service Company, at Lafayette, Indiana, and in 1924 was made assistant to the vice-president of that company with headquarters in Hammond, Indiana. In 1928 he joined the Columbia Gas and Electric System as director of Sales, and in 1938 was made a director of the Columbia Engineering Corporation and elected vice-president in charge of sales.

Mr. Gardner has been active in the American Gas Association. He has served as vice-chairman and chairman of the Industrial and Commercial Gas Section. In the Residential Gas Section he has served on a number of different committees and at various times has been chairman of the Appliance Financing, Refrigeration, and Water Heating Committees. During the past association year he has served as a member of the Managing Committee of the Section.

Southern Union Gas Co Elects New Officers

Scott Hughes

C. H. ZACHRY, president of Southern Union Gas Company, Dallas, Texas, has announced that the company's board of directors recently elected Scott Hughes, Dallas, vice-president, and Willis L. Lea, Jr., Dallas, general attorney.

Mr. Hughes, formerly general attorney of the company and for the past three years on leave of absence serving as a major in the Army Air Corps, was released from active duty in September of this year. He has been associated with Southern Union 14 years.

Mr. Lea has been a member of the company's legal department since 1936, is assistant secretary of Southern Union, and is a member of the Dallas and American Bar Associations.

Willis I. Lea, Jr.

Other officers of the company are Wofford Cain, chairman of the board, Dallas; James C. Reid, vice-president-operating manager, Dallas; J. R. Cole, vice-president, Santa Fe, New Mexico; Ross Byron, vice-president, Chicago; H. V. McConkey, secretary-treasurer, Dallas; J. Glenn Turner, general counsel, Dallas; Ethel O'E. Johnson, assistant secretary, Dallas; F. D. Bradley, assistant treasurer, Dallas.

Cunningham Honored Upon Retirement

GEORGE A. CUNNINGHAM of Charleston, W. Va., chief engineer for the United Fuel Gas Company and affiliated companies, subsidiaries of the Columbia Gas and Electric Corporation, who was connected with this system for thirty-five years was the guest of honor at a dinner given October 31 by company employees. He has retired from active duty with the company and will leave Charleston soon to reside in Florida.

Mr. Cunningham has been succeeded by George H. Moore, former assistant chief engineer. Eugene Stump has been promoted to the position of assistant chief engineer formerly held by Mr. Moore.

Appointed Chairman of A. G. A. Home Service

Mrs. L. P. Dunbar

MRS. LILLIAN P. DUNBAR, home service director, Cambridge Gas Light Co., Cambridge, Mass., has been appointed chairman of the 1945-1946 Home Service Committee of the American Gas Association, it has been announced by J. J. Quinn, chairman, A. G. A. Residential Gas Section.

Mrs. Dunbar went to Cambridge in 1943, having been home service director of Brockton Gas Light Company for six years. Prior to that time she taught home economics subjects in the Brockton High School and adult education classes for the State Vocational Department as well as Red Cross nutrition and canteen courses.

Chairman of the New England Gas Association Home Service Group 1938-1940 and of the New England Gas Association Educational Committees 1944-1945, Mrs. Dunbar served three years on the American Gas Association Home Service Committee. She also served three years as a member of the New England Gas Association Appliance Study Committee.

Mrs. Dunbar is a graduate of the Household Arts Department of State Teachers College, Framingham.

Gild Elects Mulcare

MEETING briefly at the Engineers Club, New York City, Oct. 24, during the A. G. A. convention, the Gild of Ancient Supplers elected Joe A. Mulcare as Mayor for the coming year, succeeding C. Edwin Bartlett of Philadelphia. Mr. Mulcare is head of Mulcare Engineering Co., New York City, and has been Senior Warden for the last two years.

Servel Appoints Home Service Director

Clara A. Ridder

CLARA A. RIDDER has been appointed home service director of Servel, Inc., it has been announced by R. J. Canniff, advertising and sales promotion director for Servel. Previous to joining Servel, she was executive secretary of the Colorado Nutrition Council in Denver.

Miss Ridder succeeds Frances Cowing who left Servel earlier this year. In addition to her position as executive secretary of the Colorado Nutrition Council, she formerly served as regional nutritionist for the National Live Stock and Meat Board, instructor in home economics at the New Mexico State College of Agriculture and Mechanic Arts, and as home demonstration agent in Perkins County, Nebraska.

Carlson Joins Poe

HILDING CARLSON, former government economist and industrial editor, has joined the firm of E. Holley Poe & Associates, gas advisers and consultants, as an associate, E. Holley Poe has announced.

Until recently Mr. Carlson was the New York regional economist for the United States Bureau of Labor Statistics. Previously, he held the same position in the Cleveland region.

Mr. Carlson was managing editor of Dodge Reports Press Service for more than five years before entering the government service.

Harry Ellis Retires

HARRY ELLIS, assistant general superintendent of distribution, gas department, Public Service Electric & Gas Co., retired on October 5.

Mr. Ellis had a long and colorful career in the gas operating department. His record with Public Service and predecessor companies dates back to 1900. Previously he was with the United Gas Improvement Company for several years.

After many years as engineer of the Southern Division of Public Service, with headquarters in Camden, he was assigned to Newark nineteen years ago as assistant general superintendent of distribution.

Brockenbrough Directs Richmond Utilities

APPOINTMENT of Austin Brockenbrough, Richmond, Va., engineer and former State PWA director in Virginia, as director of public utilities in Richmond was announced recently by Mayor Herbert. He succeeds J. R. A. Hobson, Jr., who resigned in July to accept a position in Arizona.

Mr. Brockenbrough, who assumed his new post on November 10, served first as lieutenant-commander, later as commander and then as captain in the Engineer Corps of the Naval Reserve since Feb. 13, 1943. He was recently awarded the Bronze Star for meritorious service with a construction battalion at Bougainville.

A native of Richmond and graduate of Virginia Military Institute and Cornell University, the new director was engaged in subway construction for several years in New York and Boston and later served for four years as engineer for the PWA in Richmond. He was promoted to assistant State PWA director in March, 1937.

Wright to Hardwick

R. B. WRIGHT has been appointed New England district sales manager of the Hardwick Stove Co., effective Dec. 1. His office will be at 110 Arlington St., Boston.

Washington Honors New A. G. A. President

"A tribute to the gas industry" is a Washington observer's comment regarding local acclaim accorded Everett J. Boothby upon his election to the presidency of the American Gas Association. Among the honors conferred upon Mr. Boothby, who is vice-president and general manager of the Washington Gas Light Company and its associated companies in nearby Maryland and Virginia, was a merit citation from the Washington Board of Trade. Mr. Boothby is shown receiving the congratulations of Benjamin M. McKelway, president of the Capital's commerce body, before a membership meeting of fifteen hundred business and civic leaders at Washington's Hotel Statler, November 5. Mr. McKelway is associate editor of the Washington Star

Product Supervisor At Smith Corp.

Jim Donnelly

JIM DONNELLY, formerly sales manager of Smithway gas water heaters, has been appointed product supervisor of the entire Water Heater Division of the A. O. Smith Corporation. J. E. Woodall resigned from this post November 15, because of ill health.

Mr. Donnelly's appointment follows a long association with the water heater, plumbing and heating, and utility fields.

Treadway Returns

Robert H. Treadway

A. A. TREADWAY, INC., of Detroit, announces the return of Capt. Robert H. Treadway after four years of service in the army. His last assignment was with the 48th Tank Battalion in their drive into Germany as part of the Seventh Army. He will again take up his work as sales engineer in the application of gas to industrial heating problems.

Obituary

WILLIAM F. R. MUNNICH, manager of the General Accounts Division of the Philadelphia Electric Company, died suddenly on October 30, at his home near Glen Mills, Penn. He was forty-eight years of age.

Mr. Munnich joined the Philadelphia Electric Company as a stenographer in the General Accounts Division in 1915 and occupied various posts in that division until his appointment as manager several years ago.

He was active in general accounting affairs of the American Gas Association and served as a committee chairman at various times. He served as chairman of the Accounting Section of the Pennsylvania Electric Association and was closely associated with the general accounting work of that Association for many years, as well as that of the Pennsylvania Gas Association.

He was a member of the Union League of Philadelphia, the Controller's Institute and the Masonic Order.

His father and sister survive. His wife died several years ago.

FRANK A. NEWTON, for many years in general supervisory charge of rates for The Commonwealth & Southern Corporation system, died November 16 of a heart attack in Peoria, Illinois.

Mr. Newton was born in Sparta, Wisconsin, May 21, 1884. After attending the college of engineering at the University of Wisconsin, he spent some time in Colorado with the U. S. Reclamation Service and U. S. Geological Service and later was engaged by the Wisconsin Railroad Commission.

In 1912, he joined the staff of Hodenpyl Hardy & Co. in connection with public utility rate and valuation matters and when The Commonwealth & Southern Corporation was formed in 1929 he was placed in general supervisory charge of rates for that system.

Mr. Newton was a past chairman of the Rate Committee of the American Gas Association and also had been chairman of the Rate Research Committee of the Edison Electric Institute for a number of years. He was a frequent contributor to technical and trade publications on matters pertaining to rate and valuation matters.

CLIFTON W. SEARS, of Pasadena, Calif., one of the founders of the Natural Gas Association of America, predecessor of the Natural Gas Department of the American Gas Association, died in November. He was 74 years of age.

It was Mr. Sears who on February 7, 1906 at a meeting of three men in St. Joseph, Mo., suggested the organization of a national natural gas organization. At the initial organization meeting on February 20, 1906, he was made chairman of the Committee on Constitution and By-Laws. Subsequently, he played a prominent part in its affairs and was a progressive leader of the natural gas industry.

Together with another founder of the Natural Gas Association, Col. M. W. Walsh, Mr. Sears was made an honorary member of the Natural Gas Department of the American Gas Association at the annual convention in October, 1943.

Mr. Sears was born in Newark, Ohio, in 1871. His first job with the gas industry was in Delaware, Ohio, with the Delaware Gas Company, a company producing manufactured gas. Within a year, however, this company changed to natural gas, as did the Mount Vernon Gas Company, with which Mr. Sears was associated a year later.

Shortly after this, he became associated with the Logan Natural Gas and Fuel Company in Columbus, Ohio, first as general inspector and later in the Leasing Department. Just prior to the founding of the Natural Gas Association, he was in Independence, as general contracting agent for the Kansas Natural Gas Company.

In 1910 he again saw manufactured gas changed over to natural gas while he was vice-president and general manager of the Fort Worth Gas Company in Texas.

From 1914 to 1918 he was associated with the Southern California Gas Company, the Medina Gas and Fuel Company, Wooster, Ohio, and the Empire Gas and Fuel Company in Fort Worth, serving all of these organizations in important executive capacities. In 1920 he became vice-president and general manager of The East Ohio Gas Company in Cleveland.

In 1925 Mr. Sears financed and built the Larutan Natural Gas Company, Wichita, Kansas, the first purely industrial gas pipe line of any considerable length—the line extending from Blackwell, Oklahoma, to Hutchinson, Kansas.

Mr. Sears was president of this company when it was sold in 1928, at which time he retired from active business. His interests, however, continued to be directed to the industry with which he was so long affiliated, and at the time of his death he was still interested in gas and oil production and the manufacture of dry ice from natural CO_2 gas.

WATER GAS SET CAPACITIES

(Continued from page 542)

ing table shows the actual performance on the maximum day—January 25, 1945.

While the outlet gas was "clean" on that day, it was evident that this purification plant was very close to its ultimate safe capacity.

If the results shown that day indicate the ultimate safe capacity, the figures agree very closely with those obtainable by use of either of two of the most liberal of the numerous formulae extant. One of these indicates a safe capacity, in such purifier plant, of 14.8 cu.ft. (Haug formula—United Engineers & Constructors, Inc.) of gas per cu.ft. of oxide per hour. The other, from a British Gas Journal (Article by "Proteus" —page 51, July 5, 1933) indicates 18.2 cu.ft. of gas per cu.ft. of oxide per hour. These to be compared with actual performance at Station B of 18.6 cu.ft. of gas per cu.ft. of oxide per hour.

Field tests of the capacity of gas plant apparatus, such as those above described, are vitally important in connection with good operation. They furnish to the management data necessary to provide means of increasing capacities at lowest cost proportioned to the growth of its business. In fact it is only by such means that trustworthy information can be secured. Data from this kind of investigation are also indispensable to the designing engineer in improving the capacity and efficiency of apparatus.

As an instance:—Through such test work on the type of tubular condensers in common use 25 years ago, it was shown that the rate of heat transfer per hour per sq.ft. of surface per degree difference in water and gas temperatures was at best about 4 B.t.u., and in some designs lower, to be compared with 35 B.t.u. obtainable to-day, and also that, per sq.ft. of ground space, the capacity of gas cooling apparatus was very low.

To further illustrate the accomplishments of designers of gas plant equipment over the last 15 to 20 years—Assuming a certain square footage of ground space, it is possible to-day to build upon it a condenser of present day design which will have 30 times the capacity for cooling gas as condensers whose design was considered sound 25 years ago.

Total carburetted water gas produced	56,080 M.c.f.
Total oxide in use—100,000 bus.	125,000 cu.ft.
Cu.ft. of gas passed per cu.ft. of oxide in use	448 cu.ft. per 24 hrs.
Average gas passed per hour	2,335 M.c.f.
Total grains of H_2S in gas passed per hour	3,500,000
Total pounds of H_2S in gas passed per hour	500
Total pounds of H_2S removed per bushel per hour	.005

APPENDIX "A"

Actual installation cost of a 20,000 M.c.f. per day carburetted water gas plant—This capacity actually obtained—See Test I. (The actual extension to the Station B Generator House included the following.)

Two—10 ft. water gas sets with mechanical generators and waste heat boilers, building extension, blower, blast main, take-off main, small piping complete for steam, oil and water, electric wiring and lighting	$452,899	
Two (2) automatic controls	15,000	
		$467,900*
(Building cost $44,483. A building of the design of the old building would have cost over $125,000)		
One—50,000 lb. per hour steam boiler erected	$25,000	
Foundations	5,000	
Piping	10,000	
Blower	1,500	
Breeching	2,500	
Building Extension	15,000	
Incidentals	6,000	
		65,000*
One—High Duty Condenser, 800 M.c.f. per hour	$57,000	
Piping	5,000	
Foundations	3,000	
		65,000†
Valve connections, including connections to relief holder		15,000‡
One—1,000 M.c.f. per hour turbo exhauster		20,000*
Four—Purifiers (10,000 bus. each) erected	$50,000	
Foundations	6,000	
Piping	25,000	
Filling and Emptying Equipment	20,000	
	(say)	105,000†
One—1,000 M.c.f. per hour station meter	$10,000	
Foundations	1,000	
Piping	3,000	
		14,000†
One—500 M.c.f. relief holder	$133,500	
Foundations	12,560	
		146,060§
One—Tar Separator	$25,000	
Oil and Tar Tanks	20,000	
Fuel Handling	50,000	
		95,000‡
Estimated Total Cost		$992,960
Estimated Total Cost per M.c.f. per day		$49.65

*Actual Cost.
†Estimated—Actually under construction.
‡Estimated—This shows the portion of the cost of existing equipment allocable to 20,000 M.c.f. capacity adjusted to 1945 cost conditions.
§Actual Cost—Adjusted to 1945 cost conditions.

APPENDIX "B"—Results of Tests

Test No.	I	II	III	IV
Sets in Operation	(2) 10 ft. x 9 ft.	(2) 9 ft.	(2) 9 ft.	(2) 10 ft. x 9 ft.
Length of Test, days	14	15	4	7
Fuel per M.c.f., lbs.	14.39	15.42	14.28	16.90
Oil per M., gals.	4.44	4.22	4.27	4.18
Make per set day, M.c.f.	10,119	8,560	9,313	7,793
Water Gas Btu.	529	531	531	530
Water Gas Specific Gravity	.701	.720	.701	.713
Kind of Oil	Bunker "C"	High Coke Residuum	Bunker "C"	High Coke Residuum
Gals. of oil per run	154 to 175	120 to 162	155 to 168	138 to 152
Avg. time cleaning carburetter	1 hr. 29 min.	3 hrs. 8 min.	2 hrs. 26 min.	4 hrs. 29 min.
Operating Conditions:				
Length of cycle, minutes	4.17	4.00	4.00	4.17
% Blow	3 days 36%; 11 days 38%	33	38.6	35
% Air Purge	4	4	4	4
% Blow Run	6	6	6	6
% Steam Run	52	58	51.4	55
% Down Run	42.5	38.9	39.2	39.7
Generator Air per min., c.f.	20,000	20,000	20,000	20,000
Top Steam, % by weight	28.1	28.4	30.4	26.1
Avg. Temp. Base Super., °F.	1492	1400	1468	1486
% Oil Reformed	21.6	22.0	21.9	22.1
Oil Characteristics:				
Average Enriching Value	Slightly over	Slightly over	Slightly over	Slightly over
Laboratory Set	100,000 Btu/gal.*	100,000 Btu./gal.	100,000 Btu./gal.*	100,000 Btu./gal.
Conradson Carbon, %	.79–1.93, Avg. 1.5	6.74–7.39, Avg. 6.9	4.69–5.38, Avg. 5.07	7.3–8.0, Avg. 7.63
Vis., Saybolt Furol, 122° F. Sec.	13–17, Avg. 16	150–562, Avg. 352	.56–65, Avg. 60	372–448, Avg. 432
Ash, %	Trace to 1.0, Avg. .14	.56–.96, Avg. .77	.23–.30, Avg. .26	.78–1.07, Avg. .90
Tar Characteristics:	*1st 5 Days* *Last 9 Days*			
Specific Gravity	1.14 1.15	1.154	1.157	1.142
Insoluble Matter	10.2 13.4	11.3	13.3	10.4
Vis., Eng., 50 cc. 140° F., Sec.	120 200	660	290	935
Sul. Res. Total Dist. to Coke	6.7† 3.8‡	2.8	2.1	1.3
Temp., Base Superheater, °F.	1490 1510	1400	1468	1486

Coke Characteristics—Ash 8%+; Fusion point of ash 2550° F.; size—over 2″ screen, usual size of water gas by-product coke, well screened and free of fines.

*Curve of enriching value nearly constant between temperatures of 1450 and 1700°, maximum 103,000 Btu. at 1650° F. (by Laboratory set).
†Shows undercracking.
‡Improved, satisfactory oil cracking.

Gas Turbine Laboratory To Be Established

THE important role that gas turbine engines are expected to play in the power field in the future is indicated by plans recently announced to establish a gas turbine laboratory at the Massachusetts Institute of Technology. It will be used for graduate instruction and fundamental research in this new and promising field in engineering.

The gas turbine was applied during the war with spectacular success in jet-propelled aircraft and is considered one of the most important technical developments to emerge from the war. As a power plant it holds great promise for many other transportation and industrial uses. However, it is as yet far from perfect and there is a need for technical research and the discovery of new techniques required in the construction of these engines which operate at extremely high speed, high temperature, and high compression.

The new laboratory will contain a supersonic wind tunnel and unique facilities for research on the elements of compressors, combustion devices, jets, and gas turbines. It will also have testing facilities for the operation under controlled conditions of such devices.

FOOD SERVICE INDUSTRY COOPERATION

(Continued from page 555)

group graduate into the next, representing greater cooperation. In time we believe that the great majority of the gas utilities of the country, with but few exceptions, will see the light and will fully cooperate with kitchen equipment houses.

Cooperation, however, to be effective must be mutual. It is not a one-way street. We in the gas industry must be able to show to our recalcitrant members the fruits of our labors in the vineyard of cooperation, if we are to persuade them to follow our lead. The ledger of cooperation must balance, with credits to us, to offset the debits that we willingly charge against the account. This is a point that I wish to emphasize. We do not ask, as the fee for our cooperation, that the food service equipment industry sell our fuel for us; but we *do* ask that you preserve an unbiased attitude regarding fuels, and that you make your recommendations directly in your customer's interest, without showing favor to any of our competitors. This, I believe we have the right to ask of you in return for our cooperation.

An unbiased attitude regarding fuels is an obligation that you owe to your customers, even more than to us. Your recommendations should be based on the comparative economics of the fuel situation—the actual dollars and cents advantage to your customers—not on glamour, electronics, radar, or an armful of intangible and unprovable advantages. We in the gas industry are willing to stake our future in this field, on the sound basis of economic advantage to your customer, that can be proven by test. It is our conviction that we are entitled to the commercial cooking business on the basis of customer economic advantage and it is up to us to protect our own interests.

A few cases have occurred where kitchen equipment houses have, notwithstanding the full cooperation of the local gas utility, recommended competitive equipment, contrary to their customer's interest. I wish to point out to you that such a policy strikes a blow at any cooperative plan and can do great damage to our relationship. Such action gives support to those in our industry who question the value of cooperation.

Under such conditions, it has been necessary for the gas utility to submit a counter proposal to the customer and to reverse the recommendation of the kitchen equipment house. In most cases, the gas utility can induce the customer to purchase gas equipment on the basis of economics, and recommendations for another fuel by kitchen equipment houses, contrary to their customer's best interests, are damaging to the reputation of the kitchen equipment house with the customer. It is my opinion that it is not too much for us to ask, that your fuel recommendations to your customers be made without bias and definitely in your customer's interest. We are willing to abide by any decision based on economics, but will be forced to take issue with you, when any such recommendations are not only contrary to our own interests, but to those of your customer as well.

It may be that a Joint Committee on Trade Relations should be organized, with members of the food service equipment industry and the American Gas Association serving jointly on the committee. This committee would have a semi-official status and could be the rallying point for further progress in this direction. The gas industry would welcome such an opportunity for developing a closer cooperative relationship, and I submit this suggestion to you for your consideration.

The gas industry is entering the postwar period strongly conscious of the need of cooperation with other agencies selling gas appliances in all fields. Great progress is being made in the field of residential appliances and I am convinced that equal progress can be made in the food service equipment field as well, if we all pull together. The future of the food service equipment business is a bright one and it is my hope that we can jointly make it even brighter for one another.

SERVICES OFFERED

Gas **Engineer,** formerly connected with **manufactured** and **liquefied** petroleum gas industry, just released from Army after two years service and seeks connection. Experience covers coal, carburetted and liquefied gases at low and medium pressures. Operating and sales and utilization. Army work in ETO also in gas field rehabilitating works, transmission grids, etc. Available at once. Go anywhere. **1500.**

Salesman—Veteran, aggressive, capable, 10 years **air conditioning sales** experience metropolitan area, knowledge architectural and engineering trade, excellent business background, seeks position in utility industry or affiliated field. **1502.**

Executive with **management, engineering** and **legal** background and degrees. Twenty years experience in industrial and public utility production and operation. Knowledge of public relations and personnel work. Will be released from Army and available October 15. Location immaterial. Complete information furnished on request. **1503.**

Distribution Engineer and pipe line supt. Navy dischargee. 15 years' experience manufactured gas distribution, high and low pressure, regulation, design and cost work. Some technical education, 38—married. **1504.**

Gas Engineer Mechanical Engineering Graduate. Available after January. Three years with the U. S. Navy as Chief Engineer. Nine years with leading manufactured gas utility as Superintendent's assistant experienced in Design, Construction and Supervision of Gas Distribution Systems. Experienced in production, commercial and other gas utility fields. 36—married. **1505.**

Experienced Executive and Engineer. Has had charge of all engineering, design, construction, operation and maintenance incident to all functions of Gas Industry, both manufactured and natural gas including, for the past twenty years, major supervision of the industrial utilization of gas in one of the largest city's many industries. **1507.**

Operating Executive and General **Manager** familiar with all phases of gas production and distribution. Technical education, M.E. degree, with wide experience including considerable sales. Rehabilitation work a specialty. Now employed but available for attractive opportunity. Further details on request. **1508.**

Metallurgist-Furnace Engineer: B.S. Met. Eng. 3 yrs. service with well known furnace engineer. Extensive experience with combustion systems and furnace atmospheres-specifically, gas carburizing (including carburizing-diffusion and carbon restoration), nitriding, ferroxing, brazing, hardening, annealing, etc. Also research experience. 29. **1509.**

POSITIONS OPEN

Draftsmen experienced in piping layouts for manufactured gas plants. **0438.**

A Mid-Eastern gas company has opening for experienced **assistant Gas Superintendent.** Prefer man experienced in manufactured gas operations and maintenance to assist Gas Superintendent in the operations of the property. Some distribution experience desirable but not absolutely necessary. Reply giving full details of education, experience, salary and date available. **0439.**

Distribution Superintendent: Opportunity for competent man to take complete charge of all distribution activities of medium and low pressure manufactured gas system serving 20,000 customers. Responsibility includes service activities, appliance installation and repairs and meter shop operation. Location, Southeastern Section. Replies will be treated in strict confidence. **0440.**

Industrial Sales Engineer—Medium Sized Southern Utility just converting to natural gas requires the services of a man 35 or under with good technical education and experience. Start January first. Write fully giving experience and salary expected. **0441.**

Public Utility requires experienced Graduate **Home Economics Representative** to take charge of department which will be organized consisting of one director and one or two assistants. Activities will include platform lectures, and other home service work covering foods and proper uses of appliances. Please write and give qualifications, age, education, experience, salary expected, etc. Correspondence strictly confidential. Good salary and excellent opportunity for advancement. **0442.**

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